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INDEX

Vol. XII., June, 1915, to May, 1916

ACCOUNTING

Accounting for China's Railways... ... 25
Aeroplane—China's Factory 449
Afforestation in China 146

AGRICULTURE

Cochin-China, Rubber in 288
Hainan to be put under Cultivation... 164
India's Cotton Crop 288
„ Rice and Sugar... 288
„ Wheat Exports Decrease ... 413
Korea, Sericulture in 38
Mongolian Rubber Scheme 288
Philippine Rice Import... 288
Rice in Dutch East Indies 288
Rubber in Cochin-China 288
Sugar-Beets in New Zealand... ... 288
Altai-Siberian Line 287
Aluminum Sheet Scarce 38
Afforestation in China 146
America, Tea Trade with 38
American Bank Needed in China ... 76
„ Chamber of Commerce of China. 116
„ Cotton Machinery in China. (Illustrated) 255
„ International Corporation acquires two fleets... 487
„ Lumber. Philippines and ... 202
„ Naval Menace 372
„ Philippine Lumber Co. (Illustrated) 240
„ Products. The Question of an Exhibition of 96
„ Shipbuilding declines. During fiscal year ended June. 30, 1915 161
„ Use of Chinese plants 425
„ Vessels calling at port of Saigon during 1915. increase of ... 74

AMUR RIVER

Amur, Blagoveshchensk on the 415
„ Railway Facilities, New 412
„ „ Open... 120
„ Railway, Russia proceeds with its construction... 74
„ Region, Gold Mining in the. (Illustrated.) 235
„ Region, Railway construction in ... 419
„ River settlement 419
„ „ Steamer, Russian Colonists 417
„ River steamers tied up for winter at Blagoveshchensk 419
„ River, Wide bend near Blagoveshchensk 419
Anglo—see also British
„ —Japanese Bank. 37
Anglo-Chinese Engineers' Association, Ltd 98
Angaur Island Phosphate Mine ... 49, 203
Anhui, Reforestation in 202
„ Japan to work Mine in 468
Antung, Japanese Post Office for ... 76

ANTIMONY—see also MINES

Antimony Output of China 290
„ Production in China. (By F. L. Cole) Illustrated 440
Army Budget, Japan's New 77
Asbestos in West China 203
Asphalt in Leyte--new Philippine Oil Field 105
Asiatic Institute First Pacific Conference 35
Australian Canal proposed 162
„ Coaling Wharf, new 201
„ Oil Strike... 452
„ Railways, New 121, 160
„ Steel Plant, New 187
„ Sugar Shortage... 187
„ to salve Emden 161
„ Tramways 330
Auditor's Economic Accounting (Philippines) 280
Auto Line, Panay 233
Bangkok Ferro Concrete Pontoons .. 201
„ Singapore Service, Straits Steamship Co. adds new liner to... 75
„ Station, New 120

BANKS & BANKING

Bank—Anglo-Japanese 37
„ of China and the Bank of Communications 243
„ of China... ... ... 76, 424
„ for Manchuria planned 199
„ houses in Japan at end of March, 1915 77
„ China-Japan Bank Planned ... 77
„ China prosperous 374
„ Chinese aid for Sino-American ... 233
„ Chinese Reserves 244
„ Committee approves new Banks in China 373
„ International Banking Corporation bought 244
„ Japan-China Bank established in Tsingtau 35
„ Japan's New Project 289
„ Mongolia to have Russian Bank ... 36
„ Philippine Agricultural 414
„ Philippine National Bank ... 289,373
„ Returns of Banks in Hongkong ... 36
„ Russian Bank for Mongolia ... 36
„ Sino-Japanese Bank Project ... 200
Battleship.—Japan's New Battleship, Yamashiro, under Construction 36, 242
Bean Cake, Dairen's Outputs 246
„ Mills, Dairen Bean Mills. (Total outputs during Feby. 16)... ... 449
„ Oil.—Manchurian Bean Oil for United States 449
Bhamo-Tengyuen Railways 287
Book-keeping, Chinese (By Ray Ovid Hall, M.A.) (Illustrated) 420

BOOK REVIEWS

Botany, Text Book of (by N. G. Gee) 289
Business Training (by S. S. Chow) 289

China, The Geography of 289
Chinese Encyclopedic Dictionary ... 401
Electrician's Pocket Book 289
Borneo, British North (by American Consul George M. Hanson, Sandakan.)... 353
Borneo, British North, Lighting Co. ... 243
„ Tallow, Source of 384
„ Woods, U. S. Expert Studies ... 202
British Admiralty sells Captured Ships to Russia 161
„ India Mineral Output 359
„ India S. N. Co. grants bonus to European employees from January 1, 1915 75
„ buy Japanese Bonds 447
„ Legation Improvements at Peking 449
„ North Borneo by American Consul George M. Hanson, Sandakan... 353
„ North Borneo Lighting Co. ... 243
„ Railway Concessions 119
„ Trade in China 245
Brick-Tea of Foochow 163

BRIDGES

Canton-Hankow Railway 444
Hankow-Ichang Bridges, Tenders called for 74
Koreans plan new Bridge 489
Over the Sungari at Harbin 417
Philippine Bids 76
British-American Tobacco Co. boats for Pacific 488
Bronzes, An Examination of Chinese (Illustrated.) by John C. Ferguson... 399
Buildings.—China Peking British Legation Improvements 449
„ China, Peking Offices 449
„ China's State Department, Completion of new Building 76
„ Construction work in Kiang F.M.S. 76
„ F. M. S. Perak. F. M. S. New Mosque in 76
„ Hankow Bank Building ... 242
„ Iloilo Custom House Bids ... 242
„ Japan plans Fine Arts Gallery 76
„ Japanese Post Office for Antung 76
„ Kuala Lumpur's Y.M.C.A. Construction of new building commenced 76
„ Kyoto, Banquet Hall in ... 76
„ Manila's New Laboratory ... 76
„ Manila's New Post Office ... 242
„ „ New Project 122
„ „ Chinese School ... 242
„ New Zealand Building Notes 243
„ Philippine Building Plan Postponed... 449
„ „ Market Construction 76
„ Straits Settlements School, ... 75
„ Tokyo Y.M.C.A. Building ... 243

(RECAP)
JUL 13 1917 388317

BURMA—CHINA

BURMA

Burma Coal Deposits 204
,, Trade in 1914... 246
,, Tungsten Supply 448
Calcutta's Hide Exports 414
Calcium Carbide (Illustrated.) 285
Canadian Steamship Co. 351, 332
Canal, Australia's proposed 162
Candy, Japanese Rock 450
Canton, Ferry Boat for 372
Canton-Hankow Railway 74, 412, 444
,, Kowloon Railway 119
Canton, Street Railway for... 121
,, Wuchang Line 444
Cattle.—Korean Cattle for Japan... ... 164
,, Mongol Cattle to Russia... ... 164
,, Shantung Cattle for Dairen ... 163
Chamber of Commerce, American ... 116
Changchun-Kirin Railway and its strategic meaning 158
Chefoo and Amoy Tonnage 36
,, Breakwater, to build 122
,, Electric Lighting 243
,, Harbour Improvement 122
,, Tussah Silk Filatures 451
,, Weihsien Railway ... 36, 119, 412, 329
Cebu, P. I.. Improving Port of ... 122, 201
Ceylon, Plumbago in... 236
,, Starts Survey 287
Chekiang, New Enterprises in 246

CHEMICALS AND DYESTUFFS

Dyes, Japan's Glut of 450
Indigo Crop India 451
Phosphorus in Japan 451
Sulphuric Acid for Russia 450
Yokohama's Chemical Output ... 450
Chengtu District, Resources of the. By Consul E. Carleton Baker, Chungking, Szechwan Province, China. 48
Chien-men, The Alterations at the ... 64

CHINA AEROPLANE

China Aeroplane Factory 449
,, Afforestation in 146
,, American Products, Question of an Exhibition in 96
,, Antimony Output of 290
,, ,, Production in (By F. L. Cole) (Illustrated.) 440
,, Asbestos in West 203
,, Bank of, Financial Report... ... 424
,, Bank of China and the Bank of Communications 243
,, Banks prosper 374
,, Banks' Reserves 244
,, Beef for Philippines 452
,, Benefit, Some thoughts for ... 310
,, Bonds 244
,, Book-keeping. (By Ray Ovid Hall, M.A.) (Illustrated) ... 420
,, British Trade in 245
,, Bronzes, An Examination of (Illustrated.) 399
,, Budget 288, 313
,, Canton Customs Revenue increases for the second quarter of 1915 76
,, Cash, Japan buys 448
,, Chefoo Electric Lighting 243
,, ,, Harbour Improvement 122, 162
,, Chekiang, Coast Preservation in 162
,, ,, New Enterprises in ... 246
,, Chihli to Open Copper Mine ... 447
,, Chinlingchen Iron Mine 448
,, Civil Service in 94, 177
,, Coal and Other Mines in ... 202, 203
,, Coast, Magnetic Survey of ... 199
,, Collapse of the Monarchy Movement 381
,, Commission Industrial 23
,, Communications' Budget 373
,, Conservancy Work in 341
,, Conservancy work in Hunan ... 242
,, Copper cash, Japan buys 448
,, Corporation Regulations 125

CHINA (CUSTOMS—JAPAN)

China Customs Revenue 245
,, ,, Reformation of the (Likin) System... 265
,, Deforestation of (Illustrated.) ... 167
,, developing Mines 447
,, Dragon, Fossils of the (Illustrated.) 247
,, Eastern Mongolia Telegraphs ... 204
,, Eastern Railway ... 73, 74, 101, 160
,, Electricity in 327
,, Encyclopedic Dictionary 401
,, Excessive Taxation in Northwestern 344
,, Field for Plant Exploration (Illustrated) 41
,, Finances of 312
,, Fire Clay of Fuchow 448
,, Fisheries of 23
,, Foreign loans and indemnities to be repaid during 1915 ... 37
,, ,, Indebtedness, Japan's action on 423
,, ,, Policy upon her National Existence, The Effect of (By Sans Gants.) ... 212
,, ,, Trade for 1914. From Report by F. E. Taylor, Statistical Secretary, Chinese Maritime Customs 30

CHINA FORESTRY

China Forestry Experts for 314
,, The Geologic History of (By Prof. Eliot Blackwelder... 81
,, Glass Factories at Poshan... ... 72
,, Gold-Mining in Szechuan 202
,, ,, ,, Anhui 290
,, Government in, Nascent Agitation for a Revival of Monarchy 42, 102
,, Government Sanction Construction of Chefoo-Weihsien Railway ... 36
,, ,, to supervise Mining 331
,, Grain Crops. Annual yield of cereals in an ordinary year ... 163
,, Gun Boats, New 162
,, Hainan Island to be Cultivated ... 164
,, Hangchow Doubling Electric Plant 243
,, Hankow Bank Building 242

CHINA HOME PRODUCTS

China Home Products Exhibit at Peking 174
,, Hongkong, Trade of ... 245, 391
,, Huai River Conservancy 242
,, Hunan Industries 138
,, Imp. & Exp. Lumber Co. in Yangtsze Trade 373
,, Improving Fisheries 422
,, Indigo in 430
,, Industrial Commission for ... 23
,, Interference with Commercial Development of 230
China's Income for 1916 288
,, ,, Tax 244
,, Independence, Intervention and the Maintenance of 264
,, Inland Waterways. Their future development as part of an Organized Transportation system. (Extracts from Presidential address of H. Von Heidenstam, Royal Swedish Corps of Engineers, before the Engineering Society of China.) 344

CHINA AND JAPAN

China and Japan 263
,, Japan Bank Planned... 77
,, Japan-Java Line 487
,, Japan to work Mine in 468
,, buys Japanese Cotton Yarn ... 489
,, and Japan. The Genesis of the Demands: the Responsibility of Baron Kato. (By Britannicus.) 86
,, and Japan, Histories of Printing and Paper in (By Henry Lewis Bullen.) (Illustrated.) 195
,, in Japan 78
,, Japan's Latest Insult to 308
,, Japanese Manufacturing Machinery in Hangchow ... ...
,, Japan Tonnage Decreases 245, 372, 451

CHINA (KIRIN—SALT)

China Kirin-Changchun Railway 372
,, Korean Tobacco for... 164
,, Land Taxation in 99
,, and her Language. (By Sans Gants.) 251
,, Lead Mine on China River ... 448
,, Leather Imports 411
,, Luhokow Coal Mines, The ... 374
,, Lumber Market for 370
,, Lungkou, The Port of 391
,, Mail adds Capital 373
,, Mail Steamship Co. doubles fleet 487
,, Many Mines in 414
,, Maritime Customs' revenue for June, 1915 76
,, Materials for Japan 451
,, Manufactories 145
,, Metalliferous Mines of Hunan Province. (Illustrated.) By A. S. Wheler, M. I. M. M. 134
,, Middleman and trade in 342
,, Mineral Area of Western (By Arthur J. Moore-Bennett.) (Ill.) 215
,, Many Mines in 414
,, Mine at Chinlingchen, Japan Wants 492
,, Mining in 188
,, Mining Laws, Revision of ... 313, 466
,, Mining Regulations 290
,, Monarchical Movement in 102, 171, 175, 228, 557, 288, 298, 339, 381, 426
,, Monarchy Expense 288
,, Motor-Boat Traffic 161
,, Mukden Foundry Co. 448
,, National Assembly, The 385
,, National Conservancy Bureau ... 162
,, Native Dyes of 358
,, New Shipping Line 199
,, Needs American Bank 76
,, Need of Roads 144
,, New Taxes 288
,, Official Interference and Commercial Development 230
,, Oil Resources of 99
,, Oil Tree in U.S. 164

CHINA OPPORTUNITIES

China, Opportunities in 194
,, Paying Railway Loan coupons ... 36
,, Pacific Line Starts 341
,, Plants for American use 425
,, People's Convention, The 143
,, Philippine Lumber Trade 202
,, ,, Woods in 348
,, Pingsiang Colliery. (A Story of early Mining difficulties in China.) (Illustrated.) 375
,, Public Spirit in 93
,, Puyang River Conservation ... 122
,, Quest for a constitution 424
,, Railway Lines to be constructed during 1916 329
,, ,, Mileages 119
,, ,, Accounts 25, 98
,, ,, in 1915 387
,, ,, Progress of 52
,, ,, Uniform Account for ... 25
,, Redeems Notes 244
,, Reforestation in Chekiang... ... 450
,, ,, of Sacred Mountain 450
,, Republican Revolt in 339
,, Resources of. The Work of the Newly-Created Commercial and Industrial Commission 53
,, Resources of Chengtu District. (By Consul E. Carleton Baker, Chungking, Szechwan Province, China.) 48
,, Restoration of Monarchy in ... 298
,, reverts to Republicanism 426
,, Reviving the Monarchy in... ... 171
,, Revenue, Estimate for 1915, ... 37
,, River Navy 199
,, Roads 387
,, Russia and Mongolia 12
,, ,, Mongolian Agreement. (Translation from the French.) 13
,, Bad roads of (Illustrated) ... 460
,, Roads. The Salvation of China. (By Arthur J. Moore-Bennett, C. R. G. S. 292

CHINA SEA SALT

,, Salt Revenue. 68, 199, 244, 288, 446, 490

CHINA—COMMERCE

China Salt Tax Surplus 199
,, Salvation fund for National Defense 37
,, Shipping Line, New 199
,, Sea-Salt Manufacture in North China. (Communicated by courtesy of the Chinese Salt Co. Ltd. Peking) 15
,, Shanghai Chinese in... 78
,, ,, Telephone Service ... 204
,, Silver Mine. Discovered at Paoching, Honan 374
,, aid for Sino-American Bank ... 233
,, South Grand Canal Conservancy Scheme. (Report by Mr. H. Van Der Veen, Consulting Engineer to the National Conservancy Bureau.) 333
,, State Department, Completion of New Building for 76
,, Steamer for China Run 160
,, Stock Raising in 163
,, Sugar in Szechuan 164
,, Sunkiang Electric Plant, to extend 121
,, Tea, Improvement of ... 179, 449
,, Telegraphs in... 250
,, Telephone System for Tiehling ... 204
,, Trade Conditions in (By V. Gonzales, Foreign Trade Adviser of National Association of Manufacturers of United States.) ... 238
,, Trade Increase 245
,, Trade with Japan Decrease ... 245
,, ,, Openings in 237
,, Transportation in, by Mr. Sidney J. Powell, A. M. I. C. E., F. R. G. S. 436
,, Treaty Powers, China and Japan 262
,, Troubles, Japan's Responsibility for 308
,, Tsingtau Customs Receipts ... 447
,, Tungchwanfu, Yunnan, Copper Mines. (By V.K. Ting, Director of the Geological Survey, China, Illustrated)... 207
,, United States Capital for 233
,, Visitors use Trans-American Telephone 117
,, Walnut Industry 72
,, Wild Silk of, ... 164
,, Work Russian Mines 331
,, Yuan Shih-kai and the Monarchy Movement 175
,, Yunnan Revolt 307
,, Zinc and Lead in 290
Chinghsien-Dolonor Line, Construction of 119
Chinkiang Tonnage 36
Chinlingchen Iron Mine 290
Chiyo Maru, Wreck of (Illustrated.) ... 437

CHOSEN—see also KOREA

Chosen, Commerce and Industry of (Illustrated) 147
,, Financial Independence of ... 447
,, Copper Mine Sold 492
,, Cotton Crop in 256
,, Import Salt to 318
,, Iron Mine on Quelpart Island 290
,, Mining Supplies in 430
,, Railway Hotel at Pyengyang ... 487
,, Railways of 109
,, Yusen Kaisha Extends ... 36
,, Civil Service in China ... 94, 177
Coal Fields in Manchuria, New 331
,, Field, South China 203
,, Fushun Collieries Outputs 290
,, Indian Output of 331
,, and other Mines in China 202
,, Wharf, Australia's New 201
Coast Preservation in Chekiang 162
Coconut growers' needs in the Philippines (Illustrated.)... 139
,, Products Co. formed in P. I. ... 246
Coffee in Mindanao, P. I. 450
Collieries Extensions, Fushun 232
Colonists Russian on Amur River ... 417
Colonization of Tsingtau 78
Commerce and Industry of Chosen (Korea.) (Illustrated.) ... 147
,, of Formosa. (By Consul Edwin L. Neville, Tansui,) (Ill.)... 189
,, Manchuria's Trade 37
Commercial Car Workshop... 71

COMMERCE—ELECTRICITY

Commercial Development, Official Interference and 230
Commission for China, Industrial ... 23
Companies Japanese 451

CONSERVANCY

,, in China 341
,, China National Bureau 162
,, China, The South Grand Canal. (Report by Mr. H. Van Der Veen 333
,, Huai River... 242
,, work in Hunan 242
,, Japan's 202
,, in Korea 122
,, in Kwangtung Province ... 25
,, Puyang River Work Finished ... 122
,, West River... 330
Constitutional Imperialism in Japan. (By Professor E. W. Clement) 438

COPPER—see also MINES

Chosen Mine Sold 492
Mines, Yunnan 203
Osaka Co., Shares 492
Russia Wants Japanese 492
To Open Chihli Mine 447
Pot for reduction of Malachite ... 217
Copra Industry, Drying plants for. (Ill.) 139
Corporation Regulations, China's. Translation of Mandate Promulgated—January 1, 1914. 125
Cotabato. P. I., Harbour Improvement ... 201
Cotton in China 98
,, Crop in Chosen 256
,, Crop, India's... 288
,, Indian for Japanese Mills ... 452
,, Industry. Japanese ... 288, 442
,, Machinery in China, American. (Illustrated) 255
,, Mill.—Japan's Cotton Mill Outlook 449
,, Shortage of the world 391
,, Mills Busy 246
,, Yarn, China buys Japanese ... 489
Customs decrease in P.I. 373, 374
,, Revenue, Canton, second quarter of 1915. 76
,, China's Maritime 76, 245
,, (Likin) System in China, Reformation of 265
,, (Likin) on the Tientsin-Pukow Railway 319
,, Tsingtau 100

DAIREN—see also LIAOTUNG

Dairen Electric Light Service 121
,, to Frisco. T. K. K. Will Open Freight Service Shortly... ... 199
,, Harbour Resounding 122
,, Shantung Cattle for 163
,, Shipping Returns. For August, 1915 161
,, Outputs of Bean Cake 246
Lane, Sir Richard 312
Deforestation of China, The(Illustrated.) 167
Diesel Engine Tanker's Long Trip ... 373

DOCKS—see also SHIPPING

Docks.—New Japanese Dockyard ... 332
,, Taikoo Dock is Busy 373
,, Yokohama's new Repair 162
,, Yokohama Naval 162, 242
Dollar S.S. Co. buys new steamer 332, 413
Dragon, Fossils in 314
Dreadnought, Japan's New 162
Dutch East Indies, Rice in... 288
,, Liners to Philippines 413
,, Line's New Service 241
Dyes of China, Native 358
,, Japanese Co. formed. 288
,, Japan's Glut of... 450
Eastern Mongolia, Population and Colonization 78
Eastern Provinces Deficit 76
Education in the Philippines. (Ill.) ... 266

ELECTRICITY

Electric Light.—British N. Borneo Co. 243
,, Chefoo Lighting 243
,, Dairen Service 121
,, Electrically driven Mine Pump 327
,, Hangchow Doubling Plant ... 243
,, Harbin Electric Tramway ... 329

ELECTRICITY—FINANCE

Electric India's Hydro-Electric Works, Extension of 121
,, Japanese Installation at Liushutun 449
,, Japan, Hydroelectric Power in 243
,, Japanese Will Light Kungchuling. 449
,, Japan Standardizes Plants ... 122
,, Karachi Electric Power Station 121
,, Kirin Electric Light at 121
,, Lucban, P. I., Hydro-electric Plant 121
,, Russia buys Japanese Telephones 449
,, Shanghai Municipal Plant, (From Annual Report of Electrical Engineer for 1915) 402
,, Sungkiang Plant to be Extended 121
,, Siam Electrical Co. Sales ... 440
,, Tayabas, P.I., Power Site Grant 121
,, Zamboanga's Electric Lights ... 121
Emden, Australians to salve the 161
Engineers' Association, Ltd., The Anglo-Chinese 98
Ensuiko Sugar Refining Co. to issue loan 37
Export Trade of Hongkong 391
Far Eastern Championship Games and their national significance. (By Arthur Shoemaker, Physical Director, Tsing Hua College.) 56
Far East, Status Quo in the 231
,, Sugar Prospects in 305

FEDERATED MALAY STATES

Federated Malay States Gold production 374
F. M. S. Mining Output of Malaysia ... 330
Port Swettenham's Harbour 489
Railways 275, 412
Tin Exports 204, 414, 468
Tungsten Exports of Malaysia ... 331
Filter, A new Mechanical 33

FINANCE

Financial Report of The Bank of China 424
Finance.—Bank of China redeems Tsinanfu notes 76
,, British buy Japanese Bonds ... 447
,, Canton Customs Revenue ... 76
,, China, Finances of 312
,, ,, needs American Bank ... 76
,, ,, to Redeem Notes ... 244
,, ,, Bonds Called Lottery ... 244
,, ,, Budget 288, 313
,, ,, Communications' Budget 373
,, ,, Foreign Loans 37
,, ,, Income of 1916 288
,, ,, Income Tax 244
,, ,, Maritime Customs' revenue 76
,, ,, Ministry of Communications pays 36
,, ,, Monarchy Expense ... 288
,, ,, New Taxes 288
,, ,, Salt Revenue 68, 199, 244, 288, 446, 490
,, ,, Salvation Fund for National Defense ... 37
,, ,, Tsingtau Customs ... 477
,, Chosen Financial Independence 447
,, Eastern Provinces Deficit ... 76
,, Estimate of China's Revenue 37
,, Hankow Reconstruction Loan 387
,, Hawaii; Japanese Remittances decreasing 200
,, Hongkong Banks' Returns ... 36
,, ,, Financial Statement 76
,, Iloilo Utilities to Increase Stock 200
,, India's Revenue Nearly Normal 201

FINANCE JAPAN

Finance Japan Army Budget 77
,, ,, Bank Resources... ... 490
,, ,, Budget ... 200, 289, 346
,, ,, Customs Revenue ... 447
,, ,, Finance and Economy in 1914-15 407
,, ,, Finance Problems ... 200
,, ,, Foreign Loans 244
,, ,, and German War Loot. 447
,, ,, Importing Gold ... 244
,, ,, Industrial Investments of Japan 244

FINANCE—GOLD

Finance Japan Mongolia... 76
" " Postal Savings 77, 200
" " Railway Loan ... 244, 374
" " Revenue Decrease 77, 200, 289
" " Russian Bond Issue ... 373
" " Specie Holdings 374, 447, 490
" " Yokohama Interest Rates 200
" Kiangsi Province Collects Half Million 200
" Loans to be Paid by China ... 37
" Loan Fourth Year Domestic ... 177
" " Japan's Domestic 446
" " Philippine Sugar Loans 447
" Manchuria and Mongolia. ... 289
" Mukden Government asks Loan 76
" Municipal Debts of Japan ... 446
" Mysore's Improvement Budget 374
" Philippine Bank Earning ... 490
" " Customs Decrease 373, 447
" " Income Tax 289
" " Auditor's Big Saving 200
" " Islands Trade ... 37
" " Revenue 289, 447, 490
" Russian Bond Issue in Japan 373
" Shanghai Silver Stock 244
" Tokyo Clearing increase ... 374
" " Faces Deficit 200
" Tsingtau Customs Receipts. 447
" Yokohama Collects Taxes ... 447
" Yokohama, Lower Interest in 200
Fine Arts Gallery planned for Japan ... 76
Fisheries of China, The 23, 422
Flour Consumption in South Manchuria 164
Foochow Shipping Returns 241
" Telephone Service 122
Fossils of the Chinese Dragon. (By J. O'Malley Irwin, Illustrated)... 247, 314
Foreign Loans and Indemnities to be Repaid by Chinese Government during 1915 37
Foreign Trade of China for 1914. From Report by F. E. Taylor, Statistical Secretary, Chinese Maritime Customs 30

FORESTRY

Forestry in Anhwei 202
" Experts for China... 314
" in Russia 359
" U. S. Expert studies Borneo Woods 202
" Samar Forests. To Map ... 450

FORMOSA—see also TAIWAN

Formosa, Commerce and Industry of (By Consul Edwin L. Neville, Tansui,) (Illustrated.) 189
" Line, Japan may subsidize ... 161
" South Sea Line 413
" (Taiwan) and its exposition. (Illustrated.)... 392
Forts, Chinese Eastern Railway 160
French Silk Production 413
" Mail S.S. Athos added 241
Fushun Coal Exports 203
" Collieries 232, 290
" Railway Extension 445
Geologic History of China. (By Prof. Eliot Blackwelder, University of Wisconsin.) 81
German and Japanese War Loot 447
Glass Factories at Poshan 72
" " for Yokohama 246
Goulds Centrifugal Pumps, An interesting installation of 368

GOLD—see also MINES & METALS

Gold, in Hsiaopingtao 203
" imported by Japan 244
" in Laotiehshan... 492
" Loan of 1905. Hongkong Government 314
" Lubang, Southern Benguet. By V. E. Lednicke Philippine Bureau of Science. (Illustrated) ... 184
" Mining in Amur Region. (Illustrated.) 285
" Mining in Anhui 290
" " in Laotiehshan 290
" " New South Wales... 38
Goodnow, Dr. Memorandum submitted to Yuan Shih-kai 103

GRAPHITE—INDIA

Graphite (Plumbago) in Ceylon 236
" in Honan 236
" Market for... 332
Gunboats, New Chinese 162
Great Northern Steamship Co.'s Minnesota may come back... 488
Hainan Island to be Cultivated 164
Hangchow-Hweichow Railway Project... 412
Hankow Bank Building 242
" Canton Railway Line 160
" Ichang Bridges, Tenders called 74
" Reconstruction Loan, The. ... 386
" Telephones for 122

HARBOUR IMPROVEMENTS

Harbour Chefoo Breakwater 122, 162, 431
" Dairen 122, 489
" Dredgers. Discusses 489
" Fusan, Korea 162
" Gensan, Korea 162
" Honto, Japan 162
" Iloilo P.I. River Wall 122
" Japan Works in 409
" Manila Projects 122
" Moji Work Lags... 242
" New Zealand Improving Patea 33
" Penang Board. Half-yearly report 36
" Port Swettenham's 489
" Saigon to Improve Harbour ... 330
" Siberian Port, New 468
" Singapore Report 489
" South Manchuria Ry. works ... 330
" Tsingtau Dock, Transfer to Japan 489
" Tsingtau Harbour Clear ... 122
Harbin, Bridge Over the Sungari ... 417
" Electric Tramway for 329
" Russian Church 416
Hardware Market in Japan 374
Hawaii, Japanese Remittances decreasing 200
Hawthorn Davey Pumps 295
Heilungkiang, Placer Mines in 203
" Tsitsihar, Capital of ... 418
Hemp, London Market 413
" Crop, Manila... 191
Hides, Calcutta's Exports 414
Hobart, Tasmania, Rivulet Diversion ... 201
Hokkaido, Foreign Trade of the... ... 390
" Timber Industry. (Ill.) ... 388
" Timber Output of 202
Holts S. S. Co. buy Indra Liners... ... 161
Honan, Graphite in 236
" Mine of Peking Syndicate (Illustrated.) 294
" Silver Mine 374
Hongkong Banks' Returns 36
" Export Trade of 391
" Financial Statement 76
" Government Gold Loan ... 314
" Harbour Improvements ... 201
" Reclamation Project 201
" Shipyards active 445
" Taikoo Dock 373
Huai River Conservancy 242
Hunan, Conservancy Work in 242
" Metalliferous Mines of. (Illustrated.) (By A. S. Wheler, ... 134
" Industries of 138
Hsiaopingtao, Gold at 203
Ice Breakers to Vladivostock 372
Iloilo Custom House Bids 242
" Utilities to Increase Stock 200
Improvements at Peking. The Alterations at the Chien-men... 64
India Coal, Output of 331
" Cotton Crop 288
" " for Japanese Mills ... 452
" " Mills Busy 246
" Crop Forecasts 413
" Hydro-Electric Works, Extension of 121
" Indigo Crop 451
" Irrigation Schemes in 163
" Karachi Electric Power Station ... 121
" Mineral Output 359
" Mysore Santalwood Distillery ... 398
" " Improvement Budget ... 374
" Railways 120, 198, 287, 487
" Revenue Nearly Normal 201
" Rice 288
" Sesamum Growing in 430
" Sugar 283
" Wheat Exports Decrease 413

INDIGO—JAPAN

Indigo, Chinese 430
Indo-China, Paper Pulp in... 246
" " Railway Roadbed 160
Indra Liners bought by Holts S. S. Co.... 161
Industrial Commission for China ... 3, 53
" Exhibition in Peking 96
" Investments of Japan 244
Industry, China's Encouragement of ... 146
Industries, See Manufacturers
Industries, Hunan 138
" Japan to subsidise Chemical 246
" Philippine aided 184
" Shantung 227
International Banking Corporation purchased 244
Intervention and the maintenance of China's Independence 264

IRON & STEEL

Iron Mines.—Chinlingchen 290, 448, 492
" Okura Smelter in Japan 492
" Protector, Rosphaltic 327
" Quelpart Island, Chosen ... 290, 448
" Works, Tayeh 203
" See also Mines
Irrigation Schemes in India 162

JAPAN

Japanese Army to work Chinglingchen Iron Mine... 492
Japan American Trade affected by Pacific Mail Withdrawal 161
" Army Budget, New 77
" Bank Project " 289
" Banking houses 77
" Battleship "Yamashiro" ... 36, 242
" British buy Bonds 447
" Broad Gauge 422
" Broad Gauge Railway Plan 412, 422, 486
" Budget Increased 200, 289
" to build submarines 332
" " " Warships 445
" Buys Chinese Cash 448
" Cars for Russia 160
" and China, J. O. P. Bland on ... 263
" China Bank established in Tsingtau 35
" " " planned 77, 200
" China-Java Line 487
" and China's Foreign Indebtness ... 423
" " " The Genesis of the Demands: the responsibility of Baron Kato. (By Britannicus.). 86
" and China, Printing and Paper in By Henry Lewis Bullen. (Ill.)... 105
" China Trade Decreased ... 245, 451
" Chinese in 78
" China, Insult to 308
" Chinglingchen Iron Mine 492
" Coal, New seam found 492
" Companies 451
" Constitutional Imperialism in (by Professor E. W. Clement) ... 438
" Copper for Russia 492
" Coronation Cars 160
" Cotton Industry 288, 449
" " " of (by Mr. E. F. Crowe,) 442
" Customs Revenue 447
" Dockyard, New 332
" Domestic Loan 446
" Dreadnoughts... ... 36, 162, 242
" Dye Co. formed 288
" Electrical Installation at Liushutun 449
" Emigration 77
" Exports refined Zinc... 465
" Fall of the Okuma Ministry ... 95

JAPAN FINANCE

Japan Finance and Economy in 1914-1915 407
" Finance Problems 200
" Domestic Loan 491
" Russian from... 491
" Five Concession Railway Lines ... 111
" Foreign Loans... 244
" Foreign Loans, Paying 374
" Foreign Trade 38
" Foreign Trade of 443
" Foreign Trade of the Hokkaido ... 390
" Foundry Enlarging 414
" Gains on Pacific 373
" and German War Loot 447
" Glass Factory for Yokohama ... 462

Japan Hardware Market 374
,, Harbour at Honto 162
,, Hokkaido Mines 203
,, ,, Timber Industry, The (Ill.) 388
,, Hydroelectric Power in 243
,, Imperial Banquet hall in Kyoto ... 76
,, Importing Gold 244
,, Industrial Investments 244
,, Insult to China 308
,, Iron Smelter of Okura Co.... ... 492
,, to work Iron mine in China ... 468
,, Korean Cattle for 164
,, Light plant for Kungchuling ... 449
,, Lead Imports 331
,, Lime for the Philippines 408
,, Loan for Manchuria... 430
,, Domestic 490
,, Machinery for Nagasaki 245
,, to work Manchurian Mines ... 448
,, Manila Maru on O.S.K. Tacoma run 161
,, to Manufacture Machinery at Hangchow 374
,, Mercantile Fleet 372
,, Merchant Marine 446
,, Militarism 453
,, to Mine in Yangtsze Region ... 448

JAPAN MINING

Japan Mine Survey in Hunan 492
,, Mining 343
,, ,, in Kirin Province 188
,, ,, ,, South Manchuria ... 290
,, Moji Harbour work Lags 242
,, and Mongolia 96
,, Municipal Debts of 446
,, Munitions Export 450
,, Nagasaki's New Wharf 445
,, Naval Dock at Yokosuka 162
,, Navy Increase in 242
,, ,, Plans 75
,, New Zealand Line 199
,, Nippon Porcelain Co. Extending Plant 451
,, "Open Door" in Korea Pledge Broken 315
,, Osaka Chosen Laborers in demand 288
,, Osaka's South Seas Co. 78
,, Osaka Chosen Kaisha Prospers ... 488
,, Paper mills busy 449
,, ,, Pulp in 288
,, in the Philippines 77
,, Phosphorus in... 451
,, Plans Fine Arts Gallery 76
,, ,, New Steel Works 414
,, Post Office for Antung 76
,, Postpones New Railways 140
,, Postal Savings Deposits at end of June, 1915 77
,, Postal Saving during July 200

JAPAN RAILWAY

Japan Railway Board asks Y40,000,000 ... 198
,, ,, Bonds 374
,, ,, Construction in 121
,, ,, Estimates 287, 444
,, ,, Loan 244
,, Government Railways (1914—1915. Illustrated.) 360
,, Private and Light Railways in ... 364
,, Railways and Tramways 343
,, Reforestation in 359
,, Responsibility for China's troubles. 308
,, Revenue Decrease 200
,, Revenue Decreasing 77, 289
,, Rice Crop Estimate 164
,, Rice Field 164
,, River Conservancy Fund 202
,, Rock Candy 450
,, Rubber Planters 35
,, Russia buys Japanese Telephones... 449
,, ,, Bond Issue 373, 491
,, ,, Through traffic Conference 486
,, Russians Order Ship 161
,, Shells for Russia 246
,, Sells Russia Warships 413
,, Shipbuilding, Progress in ... 74, 372
,, ,, Hampered 445
,, Shipbuilding Yard 413
,, Ships on Charter 488
,, Shipping, Navigation and Harbour-Works in 409
,, Nippon Yusen Kaisha new vessels 36, 75, 332, 442, 488

Japan Shipping, Progress of 161, 242, 488
,, Silk Exports 246
,, Sino-Japanese Problem 176
,, Soda Manufacture of 246
,, South Sea Islands, Investigating... 78
,, ,, ,, Service 241
,, Specie Holdings 374, 490
,, Specie Reserve Increasing 447
,, Standardizes Electric plants ... 122
,, Prize Steamer Suimow Sold ... 75
,, Steamers 446
,, Steel Lack of 203
,, ,, Works to expand ... 331, 484

JAPAN SUBSIDIES

Japan Subsidies, may end 488
,, Subsidy to Formosan Line... ... 161
,, Subsidises Laboratory 246
,, Sugar Production 451
,, Sulphuric Acid for Russia 450
,, Telephones, More for 250
,, Timber Output of Hokkaido ... 202
,, Tobacco Monopoly 484
,, Tokyo bank clearings increase ... 374
,, ,, Tram Suffers... 121
,, ,, Y.M.C.A. Building 243
,, Tonnage decrease 372
,, Torpedo Factory 246
,, Trade record 451
,, Traders Suggestions... 445
,, Tramp Steamers 413
,, Tramways Operating and under Construction 332
,, Travellers save Money 487
,, Treaty Powers and China 262
,, Tsingtau Customs 100
,, Tsingtau Dock, Transfer to ... 489
,, Tsingtau Guarded by Japanese Fleet 75
,, Tungsten in 374
,, Umbrellas, Demand for 450
,, Unmasked 20
,, Urged to prepare to fight world .. 453
,, Wireless to 204
,, Yokohama's Chemical Output ... 450
,, Yokohama Collects Taxes 447
,, Y.M.C.A. Building in Tokyo .. 243
,, Yokosuka Naval Dock Open ... 242
,, Yokohama's new Repair Dock ... 162
,, ,, Reclamation Work ... 202
,, Zinc Refining 492
Java Cane Sugar Industry, The 319
Java-China-Japan Lines, New Service 241, 487
Java-Frisco, New Service 199
Java, Railroad Bridge for 444
Kaifeng Honan Line 412
Kailan Mining Co. gets U.S. Army Coal contract 448
Kalgan-Seiyuan Railway, The 29
Kiangsi Revenue Stamp Sale 200
Kirin-Changchun Railway... 241
,, Electric Light at 121
Kiukiang Railroad Construction 286
Koo, Dr. Wellington 87

KOREA—see also CHOSEN

Korean Cattle for Japan 164
,, Bridge planned 489
,, Exposition shows Progress. (Illustrated.) 320
,, Fusan Harbour Works 162
,, Gensan, Harbour at 162
,, Mining in 203
,, Mining Dispute 290
,, The "Open Door" in. Japan's Studied abrogation of... ... 315
,, Ore-Treatment in 290
,, Oriental Consolidated Mine Report 448
,, Reclamation work in 122
,, Seoul Mining Co. 316, 374, 448
,, Sericulture in 38, 148
,, Tariff, The 443
,, Thousand Miles of Railway ... 198
,, Tobacco for China 164
Kowloon-Canton Railway (British Section.) (Report of H. P. Winslow, Manager.) (Illustrated.) 153
Kueichow, Road for... 329
Kwangtung Province, River Conservancy 25
,, Yueh-Han Line, U.S. Cars for 286
Laichowfu Soapstone Quarries 178
Laotiehshan, Gold Mines in 290

Land Taxation in China 99

LEAD—see also MINES & METALS

Lead Market in United States 38
Leather Imports, China's 411
,, New Manchurian Tannery ... 450
Leyte Asphalt and New Philippine Oil Field 105
Liaotung Light Railway Lines 287
Likin System in China, Reformation of... 265

LOANS

Loan China's Fourth Year Domestic ... 177
,, China's Foreign Debts 37
,, China Paying Railway Loan ... 36
,, ,, to Redeem Notes 244
,, Ensuiko Sugar Refining Co. to issue loan for 2,500,000 yen ... 37
,, Hankow Reconstruction Loan ... 386
,, Hongkong Government Gold Loan of 1905. Redemption of 314
,, Japan's Foreign Loans 244
,, ,, For Manchuria 430
,, ,, Paying Loans 374
,, ,, Railway Loan 244
,, Mukden Government asks 430
,, Nanchang-Kiukiang 160
,, Sspingkai-Chengchiatun Ry. Loan.. 287
,, Tokyo Electric Light Co. to repay Sale & Frazar 37
,, T.K.K. Redeems Debentures ... 490

LUMBER

Lumber Exports, Philippine 92
,, Market in China 370
,, Mindanao Lumberman want Standard Grades... 202
,, Output of Hokkaido, Japan ... 202
,, Philippine-China Trade 202
,, in the Philippine Islands... ... 71
,, Philippine and American... ... 202
,, Philippine Woods to U.S. ... 202
Luhokow, China, Coal Mines 374
Lung-Chiu-Yu Hai Railway 286
Lungkou, The Port of 391
Maccassar Harbour Extension 201
Macao Water Supply 162
Machinery, American Cotton Machinery in China. (Illustrated.) ... 255
,, Japanese at Hangchow ... 374
,, for Nagasaki 245
Malaysia Buys U. S. Dredges 448
,, Tungsten from 370
,, Tin Output 449

MANCHURIA

Manchurian Bank for 199
,, Bean Oil for United States 449
,, Dairen Bean Mills. (Total Outputs during Feby. 16) 449
,, Flour Consumption in South 164
,, Fushun Colliery, Disaster at 448
,, Fushun Coal Mines ... 290
,, Fushun railway Extension.. 445
,, Japanese Loan for 430
,, Japanese Mining in South... 290
,, Kirin Electric Light at ... 121
,, ,, Province — Japanese Mining in 188
,, Mines, Japan to work ... 448
,, Mukden Foundry Co. ... 448
,, Plan new Bank for... ... 199
,, New Tannery 450
,, Tobacco 164
,, Trade 37, 191

MANILA

Manila Bridge New 75
,, Chinese School 242
,, Dredger to buy 201
,, Formosa-Java Line 446
,, Hemp Crop 191
,, Post Office New 242
,, Railway Tariff to take effect Aug. 1st if approved 74
,, Quarry, may be reopened... ... 414
,, See also Philippines
Manufactures and Industries
Aeroplane Factory for China ... 449
Bean. Dairen Bean Mills 449
Bean Oil Manchurian for United States... 449

Chekiang, New Enterprises in ... 246
Chinese Manufacturies, ... 145
Coconut Products Co. Formed in P.I. 246
Cotton Mill Japan's Outlook 449
Glass Factory for Yokohama ... 246
Japan makes Russian Shells... ... 246
Japan Soda industry 246
Leather, New Manchurian Tannery... 450
Munitions, Japanese Export of ... 450
Paper Mills in Japan 449
Sugar, Japanese Rock Candy ... 450
Tea, China Tea improvement ... 449
Umbrellas, Demand for Japanese ... 450
Mather and Platt's Annual Meeting ... 35
Merchant Marine, Japan's 446
Mergen Tsitsihar Highway, Russian Transportation on 417
Messageries Maritime Steamer Porthos... 373
" " " André Lebon for China Run. 160
Mica Mine in Shantung 492
Mill, Midget Roller Flour 34
Mindoro Estate Gets P300,000 204
Mindanao Lumbermen Want Standard Grades 202

MINING AND METALS

Aluminum Sheet Scarce 38
Antimony Market Quiet 38
" Output of China 290
Asbestos in West China 203
British India Mineral Output ... 359
China, Mineral Area of Western (By Arthur J. Moore-Bennet.) (Ill.)... 215
China to develop Mines. 447
" Government to supervise Mining... 331
" Many Mines in 414
" Mining in 188
" " Laws, Revision of 290, 313, 466
Chinese Working Russian Mines ... 331
Chosen Mines, see Korea
Coal Deposits Burma 204
" Fields in Manchuria, new ... 331
" " South China 203
" Fushun Collieries ... 203, 290
" Furukawa Mine to ship... ... 445
" Indian Output of... 331
" Mines at Luhokow, China ... 374
" and other Mines in " ... 202
" Pingsiang Colliery (A story of early mining difficulties in China.) (Illustrated) ... 375
" Philippines Award, of U.S. Army 448
" Philippines Tayabas, Coal Seams 448
Copper Mines, Chihli to open ... 447
" Chosen Mine Sold 492
" Production, World's... ... 204
" Mines, Tungchwanfu, Yunnan, (By V. K. Ting, Director of the Geological Survey, China.) (Ill.)... 207
" Mines Yunnan... 203
" Lower in United States ... 38
" Russia Wants Japanese ... 492
Fire Clay of Fuchou 448
Fushun Colliery, Disaster at... ... 448
Gold Mining in the Amur Region (Illustrated) 285
Gold in Anhui 290
" Federated Malay States production in 374
" Hsiaopingtao Alluvial 203
" in Laotiehshan 492
" in New South Wales 38
" Benguet, Southern Lubang, (By V.E. Lednicky, Philippine Bureau of Science.) (Ill.)... 184
" Szechuan Mining in 202
Graphite (Plumbago) in Ceylon ... 236
" in Honan 236
" Market for... 332
Heilungkiang, Placer Mines in ... 203
Hunan Mines Surveyed by Japan ... 492
" Province, Metalliferous Mines of. By A. S. Wheler, M.I. M.M. (Illustrated.) 134
Iron Mine Chinlingchen ...290, 448, 492
" Quelpart Island, Chosen ... 200
" Smelter of Okura Co. in Japan.. 492

Iron Works, Tayeh 203
Japan to work Manchurian Mines 448, 465
" Foundry Enlarging 414
" Hokkaido Mines 203
" Mining Activity in Kirin Province 188
" to Mine in Yangtsze Region 448
" Mining in 343
" " " South Manchuria... 290
" Steel Lack of 203
" " plans New Works ... 414
" To Work Chinese Mine ... 468
" exports refined Zinc, ... 465
Korea (Chosen) Mining in 203
" Mining Supplies in 430
" " News 203
" Oriental Consolidated Report 448
" Seoul Mining Co. ...316, 374, 414
" Laichowfu Soapstone Quarries 178
Mining Laws for China, Proposed remodelled 313, 466
Lead Imports, Japan's... 331
" Mine on Chia River 448
" Scrambles for 38
" and Zinc in China 290
Malaysia, Mining Output of 330
" U. S. Dredges in 448
Manila may reopen Quarry 414
Metal Markets 331, 458
Mica in Shantung 492
Mining explosives and the War ... 322
" Men, Rewarding 188
Mine Pump 327
" Resources of Surigao Province. (By Wallace E. Pratt of the Philippine Bureau of Science.) 186
Mines Mongolia... 492
Mukden Foundry Co. 448
New Guinea, Progress in 330
Ore Treatment in Korea 290
Petroleum Prospects, New Guinea's 290
Philippines, Mining Progress in (Ill.) 183
Phosphate Anguar Island ... 49, 203
Seoul Mining Co. Report 492
Silver discovered at Paoching, Honan 374
Tayeh Iron Works 203
Tin Exports F.M.S. ... 204, 414, 449
" Market Quiet 38
" Mining and Smelting in the Orient 410
" and Tungsten Find in Siam ... 448
Tungsten Burmas Supply 448
" in Japan 374
" Malaysia Exports of ... 331
" and Tin in Siam 448
Tzuchuan Colliery, Shantung. ... 290
Zinc and Lead in China 290
" Japan 465, 492
" New York's Flurry in 37
Mitsui Bussan Kaisha to establish Shipping Base in Gulf of Mexico... ... 36
Moji Harbour Work Lags... 242

MONARCHY MOVEMENT

Monarchical Movement in China,... 102, 171, 175, 228, 257, 288, 298, 339, 381, 426
Monarchy—see also Republicanism
Mongolia Cattle to Russia 164
" China and Russia 12
" " Japan... 76
" and Manchuria Financing ... 289
" Mineral Wealth of Inner ... 492
" Mukden Foundry Co. 448
" " Government asks Loan 76
" " Waterworks 163
" Munitions. Japanese Munitions Export. 450
" Population and Colonization ... 78
" Question of Outer. (By the late W.W. Rockhill, Formerly American Minister to China) 1
" Railway in Inner 371
" Railroad to Open 444
" Rubber Scheme 288
" Sino-Russian Agreement ... 13
" Survey for Railway 372
" Trade Poor 38
Mysore (India) Santalwood Distillery ... 398
Nanchang-Kiukiang Loan 160
Nanking-Hunan Railway 286
" Trade Conditions 358

Naval, American Menace to Japan ... 372
" Dock Open at Yokosuka, Japan ... 242
" Increase in Japan 242
" Japan's New Battleship Yamashiro 242
" Plans of Japan 75
Need Inspectorate-General of China's Railways 98
New Guinea, Mining Progress in ... 330
" " Petroleum Prospects ... 290
New Zealand Building Notes 243
" " Improving Patea Harbour 33
" " Nihotupu dam 201
" " Line to Japan 199
" " Sugar-Beets in 288
Ninguta-Mulin Railway 198

NIPPON YUSEN KAISHA

N. Y. K. Cash Gifts to Shareholders ... 36
" New Steamers ... 36, 75, 332, 442
" to Raise Rates 372
North-China Desk Hong List 411
" Manchuria, New Railways ... 415
Oil (Petroleum) Resources of China ... 99
" Tank Cars, Unloading 398
" trees.—China Wood Oil Trees in U. S. S 164
Okuma Ministry, The Fall of the ... 95
"Open Door" in Korea, The 315
Opportunities in China 194
Ore-Treatment in Korea 290
Oriental Alliance Steamship Company to operate Pacific Line 488
Osaka Copper Co. Shares 492
Osaka's South Seas Co. 78
Osaka Shosen Kaisha's Profit increases 36, 488
Outer Mongolia, The Question of (By the late W.W. Rockhill, formerly American Minister to China.) 1
Pacific and Eastern Steamship Line ... 241
" Mail Withdrawal and Japan. Serious effect upon Japan-American Trade 161
Panama Canal Now Profitable 75
" " Opening 199, 445
" Pacific Exposition Press Congress 237
Panay Auto Line 233
Paper Mills.—Japan's paper mills busy 449
" " Pulp in Indo-China ... 246
" " in Japan 288
People's Convention in China 143
Petroleum —Australia's Oil Strike ... 452
" Japan's Gusher Slowing ... 452
" Prospects, New Guinea's ... 290
Peking, Alterations in 24
" Home Products Exhibit at ... 174
" Improvements at the Chien-men 64
" Industrial Exhibition in 96
" Jehol Railway 412
" Kalgan-Tatung Railway 27
" Mukden Line, 300 Cars for ... 329
" New Offices 449
" Official Changes in... 25
" Syndicate's Honan Mine. (Ill.).. 294
Penang Harbour Board. Half-yearly report 36
Peninsular and Oriental Liner Sold ... 75
" " Nile, Refloating the ... 373, 413

PHILIPPINE ISLANDS

Philippine-Agricultural Bank 414
" American-Philippine Lumber Co. (Illustrated.) 240
" and American Lumber ... 202
" Auditor's Economic Accounting 280
" " Saving 200
" Bank Earnings 490
" New Bank 289
" Bridge Bids 76
" " Manila's New Bridge 75
" Building: Girls' Dormitory for Manila 76
" Building Plan Postponed ... 449
" " Projects 122
" Cable Ship sold... 332
" Cebu Improving Port of ... 122
" " Dredging Nearly Finished 201
" China Beef for 452
" " Lumber Trade 202
" Cocoanut Growers needs (Illustrated.)... 139
" Coconut Products Co. formed 246

PHILIPPINE (COFFEE—WOODS)

Philippine Coffee in Mindanao 450
,, Cotabato, P. I. Harbour Improvement 201
,, Customs Decrease 373, 374, 447
,, Drilling Artesian Wells ... 449
,, Dutch Liners to 413
,, Education in the (Illustrated.) 266
,, Foreign Trade in 1914 ... 58
,, Government's Proposed Purchase of the Manila Railroad. (Illustrated.) 329, 357
,, Income Tax 289
,, Iloilo Custom House Bids ... 242
,, Iloilo Utilities to Increase Stock 200
,, Iloilo Water Problem... ... 163
,, Japanese in the 77
,, ,, Lime for 408
,, Lubang Gold District. (Illustrated) 184
,, Lucban, Hydro-electric Plant 121

PHILIPPINES MANILA

Philippine Manila Chinese School ... 242
,, ,, to buy Dredger ... 201
,, ,, New Post Office ... 242
,, ,, Railroad Interest ... 120
,, ,, Railway Tariff.. ... 74
,, ,, Quarry 414
,, Mindanao Lumbermen want Standard Grades 202
,, Mindoro Estate P300 000 Loan 204
,, Mineral Resources of Surigao Province. By Wallace E. Pratt of the Philippine Bureau of Science 186
,, Mining Association. (Illustrated.) 183
,, Negros, Railroad for 160
,, Panay Auto Line 233
,, Philippine Railroad 120
,, Province aided... 164
,, Revenue ... 289, 447, 490
,, "Rio Pasig", Search for ... 488
,, Shipping bill 416
,, Steamship Line... 477
,, Sugar Central may be deferred 352
,, ,, Industry of the. (By C. W. Hines, Sugar Technologist. Ill.)... 305
,, Tayabas, Coal Seams 448
,, ,, Electric Power Site Grant 121
,, ,, Road Progress ... 163
,, ,, Telegraph in... ... 204
,, Trade—Customs duties on Imports and Exports ... 37
,, Zamboanga's Electric Lights 121
,, Pier for 330
,, Zamboanga's Telephone System 204
,, Lumber Exports 92
,, Lumbering 71, 348
,, Manila Railroad purchase... 444
,, Muddle, End the, by Patrick Gallagher 291
,, National Bank 373
,, Oil Field Asphalt in Leyte ... 105
,, Owners Selling Ships... ... 413

PHILIPPINE POTASH

Philippine Potash Beds 78
,, Public Works 163
,, Railway Company. (Ninth Annual Report to Dec. 31/14) 107
,, Railroad Project 412
,, Revenue Increase ... 289, 447
,, Rice Import 288
,, Seek Shipping... 162
,, Shipping Rates increased ... 446
,, Sugar Central ... 164, 233
,, ,, Crop 164
,, ,, Loans extended ... 447
,, To Map Samar Forests ... 450
,, Tonnage act 241, 446
,, U. S. Army Coal Award ... 448
,, Wireless for the 204
,, Woods for the China Foreign markets. (By W. F. Sherfesee.) 88
,, Woods in the China Market. (Illustrated.)... 348

PHOSPHATE—RAILWAYS

Philippine Woods to U. S.... 202
Phosphate Deposits of Angaur Island 49, 203
Phosphorus in Japan 451
Pingsiang Colliery, The. (A story of early mining difficulties in China.) (Illustrated.) 375
Placer Mines in Heilungkiang 203
Plant Exploration in China. Illustrated 41
Plumbago (Graphite) in Ceylon 236
,, See also Graphite.

POPULATION—IMMIGRATION

Chinese in Japan 78
Chinese in Shanghai 78
Japan Investigating South Sea Islands 78
Japanese abroad... 77
,, In the Philippines 77
Porcelain, Nippon Company, Extending Plant 451
Potash in the Philippines 78
Printing and Paper in China and Japan. By Henry Lewis Bullen. (Illustrated.) 195
Public Spirit in China 93
Public Works.—Philippine... 163
Pukow-Shengyang Railway Line, Change Terminus of 286
Puyang River Conservation 122
Quarry, Manila may Reopen Quarry ... 411
Quelpart Island (Chosen) Iron Mines ... 290
Question of Outer Mongolia, (By the late W. W. Rockhill, Formerly American Minister to China.) 1
Quest for a constitution, China's... ... 424
Quicksilver (Mercury) See also Mines and Metals.

RAILWAYS

Railway Accounts, China's... ... 25, 98
,, Altai-Siberian 287
,, Amur Railway Facilities 74, 120, 412
,, Australia's New Railways 121, 160
,, Bahmo-Tengyuh Railways ... 287
,, Bangkok's New Station... ... 120
,, Bonds, Japan to float 374
,, Bridges.—Canton-Hankow ... 444
,, ,, Java 444
,, British Concessions 119
,, Broad Gauge in Japan 422
,, Canton-Hankow Railway 74, 412
,, Canton-Kowloon Railway ... 119
,, Canton-Wuchang Line 444
,, Car Shortage Chinese Eastern ... 101
,, Cars, 300 for Peking Mukden Line 329
,, ,, Russia Buys 15,000 160
,, Ceylon Starts Survey 287
,, Changchun-Kirin and its strategic meaning 158
,, Chefoo-Weihsien Line 36, 119, 329, 412
,, Chekiang, Construction in ... 329
,, China's 52, 387
,, Chinese Eastern Railway 73, 74 160
,, Chinese Lines to be constructed 329
,, ,, Railway Mileages ... 119
,, Chinghsien-Dolonor Line, Construction of 119
,, Chosen (Report for March, 1914) 109, 322
,, Conditions in Shantung 73
,, Construction in Japan 121
,, ,, ,, Amur Region ... 419
,, Federated Malay States Railways (Illustrated) 275, 412
,, Hangchow-Hweichow Project... 412
,, Hankow-Canton Line 160
,, Indian Railways ... 120, 198, 287
,, Indian Railway, Steel Cars on... 487
,, Indo-China's New Roadbed ... 160
,, Inspectorate General for China's 98
,, Japan, Broad Gauge in... 329, 412
,, ,, Coronation Cars 160
,, ,, Double Track Section 329, 444
,, ,, Estimates 287, 444
,, ,, Five Concession Lines ... 119
,, ,, Loan 244
,, ,, Postpones New Railways 160
,, ,, Railway Board wants Y40,000,000 198
,, ,, Report (1914-1915) 360, 364
,, ,, Russian conference ... 486
,, Kaifeng-Honan Line 412
,, Kueichow, Road for 329

RAILWAYS—ROADS

Railway Kirin-Changchun Railway 158, 241, 372
,, Kiukiang Railroad Construction 286
,, Korea, 1000th Mile of Track in 198
,, Kowloon-Canton (Annual Report for 1914. Illustrated.) ... 153
,, Kwangtung - Yueh - Han Line, U.S. Cars for 286
,, Liaotung Light Rail Lines ... 287
,, Lung-Chiu-Yu Hai Railway ... 286
,, Manila Railroad Interest ... 120
,, ,, ,, Tariff 74
,, Manila Railroad, Philippine Government to buy 329, 357, 444
,, Manila Railroad New ... 120, 412
,, ,, ,, Co. Report ... 107
,, Mongolia, New Railway in Inner 371
,, ,, New Road to Open ... 444
,, ,, Survey... 372
,, Nanchang-Kiukiang Ry. Loan... 160
,, Nanking-Hunan Railway ... 286
,, Negros, P. I. Railroad for ... 160
,, Ninguta-Mulin Railway... ... 198
,, North Manchuria (Illustrated).. 415
,, Peking-Jehol Railway 412
,, ,, Kalgan-Tatung ... 27, 29
,, Pukow-Shengyang Railway Line 286
,, Russia Buys 15,000 Japanese Cars 160
,, Russian Road to Open Mongolia 444
,, Russo-Japanese conference ... 486
,, Shanghai-Hangchow Railway ... 486
,, Shantung Railway 241, 329, 444
,, Shantung Railway Repairs ... 119
,, Shasi-Singyi Railway 241
,, Siam and Malay States to be joined 287
,, Siamese Construction ... 198, 487
,, ,, Report 74, 365, 444
,, Siberian Port, New 468
,, South Manchuria Railway 73, 119, 120, 160, 198, 287, 412, 444, 486
,, South Manchurian Railway Estimates 481
,, South Manchuria Railway Extensions at Fushun 445
,, South Manchuria Builds Russian Coaches 329
,, South Manchurian and Shantung Railway Agreement 372
,, Ssupingkai-Chengchiatun Railway 287, 329, 371
,, Taokou-Chinghua Earnings in 1914 329
,, Tasmania Railway Project ... 444
,, Tientsin-Pukow Likin 319
,, Tsitsihar-Aigun Railway 198, 415
,, Tsonan-Urga Line 329
,, Uniform Accounts for China's... 25
,, U. S. Cars for Kwangtung-Yueh-Han Line... 286
,, Yokohama Elevated Progresses 412
,, To Yunnan Mines... 119
,, Vladivostok Facilities at... ... 487
Reforestation in Anhwei 202
,, in Chekiang 450
,, China's Sacred Mountain 450
,, in Japan 359
Republican, Revolt in China 339
Republicanism, China reverts to 426
,, See also Monarchy.
Resources of China, to investigate ... 53
Restoration of Monarchy in China 171, 257, 339
See also Monarchy.
Revenue, China's, for 1915... 37
,, Increase in the Philippines ... 289
Reviving the Monarchy in China... ... 171
Rice, Japan's Crop 164
,, Dutch East Indies 288
,, India's Crop 288
,, Philippines Imports 288

RIVER CONSERVANCY

River, Conservancy Fund in Japan ... 202
,, New Zealand dam at Nihotupu... 201
,, in Kwangtung Province 25
,, Navy, China's 199
Roads, China's Bad Roads 460
,, in China 387, 460
,, Need of 144
,, The Salvation of China. (By Arthur J. Moore-Bennett, C.E., F.R.G.S.) 292
Rosphaltic, Iron protector... 327

RUBBER—SHIPPING

Rubber in Cochin-China 288
„ Planters, Japanese... 35
„ Scheme in Mongolia 288
„ World's Yield during 1915 ... 414

RUSSIA

Russo-American Freight Service arranged by Chinese Eastern Railway ... 73
Russian Bank for Mongolia 36
„ Buys Captured Ships from British Admiralty... ... 161
„ „ 15,000 Japanese Cars ... 160
„ „ Japanese Telephones ... 449
„ „ Warships from Japan ... 413
„ Coaches on the South Manchurian Railway 329
Constructing Amur River Ry.... 74
„ Forests 359
„ Mongol Cattle to 164
„ Mongolia and China 11
„ Mines Worked by Chinese ... 331
„ Mongolian and China Agreement 13
„ Railways in North Manchuria... 415
„ Shells furnished by Japan ...
„ Ship Order given Japan... ... 161
„ Ship Subsidies. Receipts for 1915 161
„ Sulphuric Acid for 450
„ Tea Purchase 163
„ United States Steamer Service 36
Saigon to Improve Harbour 330
Salt Gabelle, Program 244
„ Imported to Chosen 318
„ Manufacture in North China (Illustrated) 15
„ Revenues... 44, 68, 199, 244, 288, 446, 490
Santalwood Distillery of Mysore... ... 398
Seattle-Pacific Line, New 487
Seoul Mining Company, The. (Illustrated) 316, 374, 414
Sesamum Growing in India 430
Shanghai, Chinese in 78
„ Municipal Electric Plant. From Annual Report of Electrical Engineer for 1915. 409
„ Telephone Service 204
„ Trade 38, 234
Shanghai-Hangchow Railway 486
Shanghai Tramway Receipts 74, 198, 287, 487
Shantung Cattle for Dairen 163
„ Chinlingchen Iron Mine ... 290
„ Industries of 227, 265
„ Railway ... 73, 119, 241, 329, 444
„ Manchurian Railway Agreement 372
„ Mica in 492
„ Straw Braid Industry of ... 182
„ Tzuchuan Colliery 290
Shasi-Singyi Railway 241

SHIPPING

American International Corporation acquires two fleets 487
Shipping.—American Naval Menace ... 372
„ „ Shipbuilding declines 161
American vessels at Saigon 74
Australians to salve Emden 161
British-American Tobacco Co. boats for Pacific 488
British India S. N. Co. grants bonus 75
Canadian Pacific Ry. Resumes Steamer Service 332
Chefoo and Amoy Tonnage 36
China Coast, Magnetic Survey of ... 199
China Import & Export Lumber Co. in Yangtsze Trade 373
China Mail Steamship Co., 332, 373, 487
China Motor-Boat Traffic 161
„ Pacific Line Starts 241
„ River Navy 199
Chinkiang Tonnage 36
Chosen Yusen Kaisha extends ... 36
Dairen Shipping Returns. For August, 1915 161
Diesel Engine Tanker's Long Trip ... 373
Dollar Steamer Strathardle, 332, 413
Dutch Liners to Philippines 413
Dutch Line's New Service 241
Ferry Boat for Canton 372
Fleet Guards Tsingtau (Japanese) ... 75
Foochow Shipping Returns 241
Formosa-Manila-Java Line 446
Formosa South Sea Line 413
French Mail S.S. Athos added ... 241

SHIPPING (JAPAN—SUEZ)

Great Northern Steamship Co.'s Minnesota may come back... ... 488
Holts S.S. Co. buy Indra Liners ... 161
Hongkong Shipyards busy 445

SHIPPING—JAPAN

Japanese Tramp Steamers 413
„ Gains on Pacific 373
„ Liner Manila Maru of O. S. K. Tacoma Line 161
„ Prize Sold ... ...
„ New Steamers 446
„ Ship Yards Active 74
Japan Furukawa Mines to ship own Coal 445
Japan Gets Russian Ship Order ... 161
Japan may end Subsidies 488
Japan subsidy for Formosan Line ... 161
Japan's Coastwise Subsidies 445
„ New Battleships ... 36, 166
„ to build Warships 445
„ Merchant Marine 372, 445, 446
„ Naval Plans 75
„ New Zealand Line 199
„ „ Shipbuilding Yard ... 413
„ Shipping Progress 161, 242, 488
„ Shipyards, ... 372, 445
„ Ships on Charter 488
„ South Sea Service 241
„ Tonnage Decreases 372
„ Toyo Kisen Kaisha's Program 446
„ Toyo Kisen Kaisha Yokohama Dockyard 442
„ Traders' Suggestions ... 445
Java-China-Japan Line 487
Java-Formosa-Manila Line 446
Java-Frisco, New Service 199
"Kajang" launched at Taikoo Dockyard 488
Peninsula & Oriental Liner Sold ... 75
Peninsula & Oriental Nile, Refloating 373

SHIPPING—PHILIPPINES

Philippine Islands Shipping bill ... 446
„ Owners Selling Ships ... 413
„ Seek Shipping 162
„ Tonnage Tax ... 241, 446
Manila and San Francisco, New Line for 332
Messageries Maritime Steamers 160, 373
Minnesota's Record Cargo 74
Mitsui Bussan Kaisha plans base in Gulf of Mexico 36
Navigation, and Harbour Works in Japan 409
Navy Increase in Japan 242
Nile (Pacific Mail) on San Francisco-Orient run again 487
Nile, Refloating the P. & O. 413
Nippon Yusen Kaisha pays cash to shareholders 36
N.Y.K. plans expansion 75
„ to Raise Rates 372
„ Steamer S.S. "Tokiwa Maru" 432
„ new vessels ... 36, 442, 488
Oriental Alliance Steamship Company to operate on Pacific Line ... 488
Osaka Shosen Kaisha Prospers 36, 488
Pacific and Eastern Steamship Line... 241
„ Mail New Liners 445
„ S. S. Co. Cuts Honolulu ... 74
P. M. Withdrawal and its Japan ... 161
Panama Route Now Profitable ... 75
Panama Canal Reopening ... 199, 445
Philippine Line 488
"Rio Pasig," Search for 488
Russia Buys Captured Ships from British Admiralty 161
Russian Ship Subsidies 161
„ United States Service ... 36
Seattle-Pacific Line, New 487
Siam's Queen to have Yacht ... 241
Spanish Mail New Liner 445
Straits Steamship Co. Bangkok-Singapore Service 75

SHIPPING SUBSIDIES

Subsidies, Japan's 161, 445, 488
Subsidies Russian Coastwise... .. 161
Suez Traffic Decreases 75

SIAM—SUGAR

Toyo Kisen Kaisha to Canal Via Manila 160
T.K.K. from Dairen to 'Frisco ... 199
„ Plans More Big Ships 413
Tsingtau Fairways Clear 36
„ Shanghai, New Service ... 199
United States Building Ships ... 372
„ „ New Line to 413
U. S. Shipping Increased 199
Western Pacific announce partial embargo 74
Wharves, New Nagasaki 445
Yangtze Steamer 488
Yokohama Harbour busy 75

SIAM

Siam Electrical Co. Sales 440
„ and Malay States Railway 287
„ Railway Construction ... 198, 487
„ Railway Receipts 74, 444
„ Royal State Railways of. (Illustrated) 365
„ Trade for 1915... 414
„ Tungsten and Tin in 448

SILK

Silk China Chefoo Tussah Filatures ... 451
„ China, Wild Silk of 164
„ Exports, Japan's... 246
„ France's Production 413
Silver Mine discovered at Paoching, Honan 374
„ Stock, Shanghai 244
„ See also Mines.
Singapore City builds Modern School ... 75
„ Harbour Report 489
„ Wharves, Reconstruction of ... 330
„ Wireless Telegraph at 204
Sino-American Bank, Chinese Aid for ... 233
Sino-Japanese Bank Project 200
„ „ Problem, a 176
Soapstone Quarries, Laichowfu 178
Soda.—Japan to Make 246
South Grand Canal Conservancy Scheme, The. (Report by Mr. H. Van Der Veen.) 333

SOUTH MANCHURIAN RAILWAY CO.

S. M. R. Co. Annual Meeting 73
Harbour Works Office... 330
Double Track 120
Estimates for current fiscal year ... 481
Material 119
Needs 287
Plans Steel Works 331
Private and Light Railways in Japan Proper and 364
and Russian Coaches 329
To extend 65 miles of railway in Manchuria 73
Traffic Returns 120, 160, 198, 412, 444, 486
Tsingtau-Shanghai Service 199
and Shantung Railway Agreement 372
South Sea Islands to be Surveyed by Japan 78
„ „ Line, Formosa... 413
„ „ Service, Japan's 241
Southern Shan States Railway, The. (Illustrated.) 356
Ssupingkai Railway Line ... 287, 329, 371
Status Quo in the Far East, The 231
Steamship, New Canadian Company registered 35
Steel Plant, New Australian 187
Steelworks Japan to Aid 484
Stock.—China, Stock Raising in 163
Straits Settlements Export Trade 38, 245
„ Steamship Co. Bangkok-Singapore Service 75
Straw Braid of Shantung 182
Subsidies, Japan may end 488
Suez Traffic Decreases 75
Sugar-Beets in New Zealand 288
„ Centrals, Philippine 164, 233, 305, 352
„ Industry, The Java Cane 319
„ Industry Philippines (By C. W. Hines, Illustrated) 305
„ Japan's Production 451
„ Philippines Loans extended ... 447
„ Philippine Crop 164
„ Prospects in Far East 305
„ Refining Company, Japanese to issue loan 37

SURIGAO—TUNGSTEN

Sugar and Rice, India 288
„ Shortage, Australian 187
„ in Szechuan 164
Surigao Province, Mineral Resources of (By Wallace E. Pratt) 186
Swatow Waterworks, The 61
Szechuan, Gold Mining in 202
„ Resources of the Chengtu District (By Consul E. Carleton Baker) 48
„ Sugar in 164
Taikoo Dockyard, S. S. "Kajang" launched in April, 1916 at 488
Taiwan (Formosa) and its exposition (Illustrated) 392
Tallow, Source of Borneo 384
Tariff, The Korean 443
Tasmania, Hobart. Rivulet Diversion... 201
„ Railway Project 444
Tax, China's New 288
„ „ Income Tax 244
„ Philippine Income 289
„ „ Tonnage 241
Taxation in China, Land 99
„ in Northwestern China ... 344
Tayabas, Philippine Islands., Coal Seams 448
Tayeh Iron Works 203
Tea.—China Tea Improvement ... 179, 449
„ Foochow, Brick-tea of 163
„ Russia's Big Purchase 163
Telegraph in China 250
Telegraph Mongolia... 204
„ Tayabas 204
Telephone, Chinese System for Tiehling 204
Telephones, Foochow Telephone Service 122
„ Hankow 122
„ Japan 250
„ Telephone system at Tientsin (Illustrated) 248
Tientsin, Telephone system (illustrated) 248
„ Pukow Railway Likin 319
Timber Markets, Yalu 170

TIN See also MINES & METALS.

Tin.—Federated Malay States Exports in March 1916 468
„ Malay States Tin Output. 449, 468
„ Mining & Smelting in the Orient... 410
Tobacco.—Korean Tobacco for China ... 164
„ Manchurian 164
Tobacco Monopoly Japan 484
Tokyo Faces Deficit 200
„ Y.M.C.A. Building 243
Torpedo Factory at Mirume near Kobe... 346
Toyo Kisen Kaisha to Canal Via Manila
„ „ „ from Dairen to San Francisco 199
„ „ „ plans Big Ships 413, 446
„ „ „ Pretentious Program 446
„ „ „ Redeems debentures 490
Tramways Australian 330
„ Canton 121
„ Japanese in operation and under construction 332
„ Shanghai returns for 74, 198, 287, 487
„ Tokyo Tram Suffers 121
Tsinanfu Notes, Bank of China redeems 76
Tsinan and Tsingtau, Trade of, for the year 1914. By H.B.M. Consul, J. T. Pratt 328
Tsing Hua College. The Far Eastern Championship Games. By Arthur Shoemaker 56
Tsingtau Colonization 78
„ Customs 100, 447
„ Dock, Transfer to Japan ... 489
„ Fairways Clear 36, 122
„ Guarded by Japanese Fleet ... 75
„ Japan-China Bank established in 35
„ Shanghai, New Service... ... 199
„ Trade 38, 328
„ Tsinan Trade 328
Tsitsihar Aigun Railway 198
Tsonan-Urga Line 329
Transportation in China. By Mr. Sidney J. Powell 436
Treaty Powers, and China and Japan ... 262
Tuan Chi-jui, General, Premier and Minister of War 429
Tungsten (Wolfram) See also Mines & Metals.

UMBRELLAS—ZINC

Tungsten in Japan 374
„ from Malaysia 370
Umbrellas, Demand for Japanese ... 450
United States Building Ships 372
U. S. Capital for China 233
„ China Oil Tree in 164
„ Expert Studies BorneoWoods ... 202
„ New Steamer Line to 196
„ Philippine woods to 202
„ Ship Line to Orient 413
„ Shipping Increased 199
„ Sells Steel Cars to Chinese Eastern Railway 74
„ Steel Products Co. in new Quarters 327
„ Wireless to Tahiti and N.Z. ... 204
Walnut Industry in China 72
War, Railway Construction and the ... 100
Warships, Japan to build 445
Water, Iloilo's Problem 163
„ Macao Water Supply 162
Waterways, on China's Inland 344
Waterworks.—Mukden's 163
Wells, Philippines drilling 449
Western Electric Company, The 401
Wharves.—New Nagasaki 445
„ Singapore's Reconstruction of 330
Wireless: Japan, Wireless to 204
„ Philippines, Wireless for ... 204
„ Singapore, Wireless at ... 204
„ Tahiti and New Zealand Wireless to the United States 204
Wreck of the Chiyo Maru (Illustrated.) 437
Writing on the Wall, The. The Effect of China's Foreign Policy upon her National Existence. (By Sans Gants.) 212
Wuchang-Canton-Line 444
Yalu Timber Markets 170
Yangtsze Region, Japan to Mine in ... 448
Vladivostock, Ice Breakers for 372
„ Railway Facilities at ... 487
Yangtsze River Steamer 488
Yokohama's Chemical Output 450
„ Elevated Progresses... ... 412
„ Harbor busy 75
„ Lower Interest in 200
„ Reclamation Work 202
„ to buy Trams 160
Young Men's Christian Assn. Building in Kuala Lumpur 76
„ Tokyo Building 000
Yuan Shih-Kai abandons absolutism ... 426
„ Memorandum Submitted by Dr. Goodnow to 103
„ and the Monarchy Movement ... 175
Yunnan, Copper Mines 203
„ Mines, plans for a Railway to... 119
„ Province, The Revolt of 298, 307
„ Tungchwanfu Copper Mines (By V. K. Ting, Director of the Geological Survey, China. Illustrated) 207
"White Peril," The. Japanese Military Writer urges Japan to prepare to fight world 453
Wolfram, See Tungsten
Zamboanga, New Pier for... 330
„ Telephone System 204
Zinc, Japan exports refined 465
„ and Lead in China 290
„ New York's Flurry in 37
„ Refining in Japan 492

ILLUSTRATIONS

American Cotton Machinery in China.
American Standard Cotton Factory 255
Spinning frames, Four frame drive 255
Havey, Mr. J. F., Sales Agent ... 256
Finisher Scutcher for cleaning cotton 256
Saco Lowell Sheeting Loom 256
Machine for shearing and brushing 256
Cylinder sizing machine 256
Angaur Island Phosphate Mine, Views of.
Phosphate Steamer loading at West Cantilever 49

ILLUSTRATIONS—CHINA

Steel Work for phosphate erected by native labor 50
Wharf destroyed by typhoon... ... 50
West Cantilever after typhoon... 50
Phosphate drying plant under construction 50
Loading end of East Cantilever (Unfinished,) 50
Angaur Island Woman's Club ... 50
Labor Leader who introduced the fad of eating dog biscuits 51
Antimony production in China.
Stirring antimony in Furnace.. ... 440
Pouring crude antimony 440
Crude antimony furnace 440
Blagoveshchensk on the Amur ... 415, 419

BRITISH NORTH BORNEO

Mr. George M. Hanson. American Consul 353
Dyak Man and Wife in Gala Dress... 353
Tapping a rubber tree 353
American Consulate, Sandakan ... 354
Scene on the Bund, Sandakan ... 354
British North Borneo Tobacco Plantation 354
Daval Bay Tobacco Plantation's Offices 354
Dyak Children, wearing corsets of Brass Wire 355
Native Houses in British North Borneo 355
Harrowing a Rice field 355
Street Scene near Sandakan 355

BUILDINGS

Building: U S. Government Offices and Exhibition, proposed ... 97
„ Canton-Kowloon Railway ... 153
„ "Stop Loss" Weighing Machine 157
Chefoo Harbour Works 431

CHIEN-MEN ALTERATIONS:

The New Chien-men from a plaster model 64
Officials interested in the reconstruction of the gate 65
Tearing down the Curtain wall ... 65
The Chien-men, Peking 65
Southern Elevation of the new Chien-Men 65
Northern Elevation of New Chien-Men 65
His Excellency Chu Chi-Chien, Minister of the Interior 66
Mr. Chu Kin-how, Co-Director of the Peking-Mukden Railway 66
Eastern Side of Tower after removal of Curtain 66
Another View of the Chien-men ... 67
The Anting-men 67

CHINA—BRONZES OF

Tripod bronze vessel of Chow Dynasty, known as the K'o Ting; 399
Bronze wine vessel of Chow Dynasty, 399
„ Shang „ 399
Covered tripod bronze vessel, of Shang Dynasty 399
Bronze libation cup, of Chow Dynasty... 399
Bronze vase, Chow Dynasty 400
Tripod wine steamer, of Han Dynasty 400
Candlestick, Han Dynasty 400
Bell, of Chow Dynasty 400
Range with utensils of Han Dynasty 400
Incense Burner, Han Dynasty ... 400
Musical rattle, Chow Dynasty ... 400

CHINA—BAD ROADS

Chihli, Roads 460, 461
Yunnan, Road in 460
Honan, Road in... 461
Shansi, Roads 461, 462, 465
Main Road about one foot wide through Cultivated Country ... 462
Mongolian Plateau, Road on the ... 462
Mongolian Carts camped on the road in 452
Kalgan Pass, Road through the ... 463
Chinese Road, Common Mishap on... 463
Shansi, Planks from the hills of ... 463

ILLUSTRATIONS—CHINA

Shansi, Peking Cart in... 463
Kweichow Province, Roads in ... 464
Kalgan Pass, Motor Car on the ... 464
Shantung, Road in 465
China, Deforestation of 167
Peking, Western Hills. Temple preserve containing oak and pine ... 167
Yulin, City Wall. Surrounded by sand from Ordos Desert 167
Weichang, Trees which are gradually disappearing 168
„ Virgin Forest 168
„ Hills where Pine and Spruce are rapidly disappearing 168
„ Devastation in Larch Forest 168
„ Ridged effect of weather on ground after removal of wood... ... 168
„ Once wooded country ... 168
Kansu, Bridge between Chone and Minchow 169
„ „ Built of timber grown in adjoining forests 169
Yalu River District, Lumbering in ... 170
„ Constructing Logging Railway 170
„ Timber rafts on upper 170

CHINA—GEOLOGICAL HISTORY OF

Diagrams to illustrate geological conditions in China 82
Valley in the Tsin-Ling Mountains... 83
Mountain stream eroding Banks, ... 84
Valley farming land formed by Erosion and deposition of Silt... ... 84
Narrow Mountain Pass 85
Yangtsze River Gorge 85
Deep Gorge worn by river at Ta-chienlu, Szechuan, ... 85
Honan Province—Washing River sand for Gold 135
Limestone, near Moulu. A tunnel cut through 211
Limestone slope near Loshue .. 208
Linwu Tin Mines 136
Liulincha Gold Mines 134
China, Mineral Area of Western
Mountain Pass in Yunnan 215
Main Street of Talifu, Yunnan ... 215
Copper Pot for reduction of Malachite 217
9,000 foot hills rising from plain near Tungchwan, Yunnan 219
Valley near Chaotungfu, Yunnan ... 219
Scene on Weining Plateau in Yunnan 220
Salt Market of Yunnan-Kweichow Frontier 221
Blast Furnace for iron, Tonghai, Yunnan. 221
General view of spelter Furnace at O-Yin-shan, Yunnan 222
Retort. 222
Section from Pichichai through tin district to Manhoa 223
China Ore Dressing Floor at Yutung Tin Mines 136
China Patungla Quicksilver Mines... 136

CHINA—PLANT EXPLORATION

Mr. Frank N. Meyer, Plant Explorer for the U. S. Department of Agriculture 41
China's wild peach, forerunner of all cultivated peaches. 42
Dried persimmons to take place of fig, as prepared for market by Peking growers 42
Drying Persimmons on housetop in Siku, S.W. Kansu 42
Chestnut tree afflicted with blight ... 43
Mother-in-law Jujube (Zizyphus sativa).... 43
White barked Pine Tree (Pinus bungeana) in the birthplace of Confucius, chosen by Ex-Minister W.W. Rockhill to be planted upon his grave 43

ILLUSTRATIONS—CHOSEN

Tea Chest Tree (Liquidamber formosana) blood brother to sweet gum tree of Eastern United States 43
Shantung Grapes and Wild Pear ... 44
Virgin Forest in Northern Korea ... 44
Forested Mountains in Ili province 46
Terraced Mountains in Western Kansu growing broadbeans, barley, Etc. 10,000 feet above sea level ... 46
Town Gate, denuded mountains and Lombardy Poplars of Chuh-chou in Southwest Kansu... 46
Mountains so utterly deforested that the overburden of earth has been washed away 46
Explorer's Caravan in Russian Turkestan 46
Field of Odorless Cabbage in Kansu Province 46
China's New Premier and Minister of War, General Tuan Chi-jui... ... 429
Shuikuoshan lead and zinc mine with modern metallurgical plant ... 134

CHINA—YUNNAN COPPER MINES

Upper Yangtsze near Yentsin ... 207
Limestone slope near Loshue covered with debris 208
A horizontal tunnel cut through Limestone, near Moulu 211
A tributary of the Upper Yangtsze, near Tiechang. (Taken from a considerable height above the river.)... 211
Chinese Dragon, Fossils of the 247
„ and Japanese Delegates in the recent negotiations 24
Chihli, Roads in... ... ... 460, 461
Chiyo Maru shortly before wreck ... 437

CHOSEN—COMMERCE AND INDUSTRY

Korean Cotton Fields 147, 148
Microscopic Examination of Korean Silkmoths 148
Tending Caterpillars 148
Silk-Reeling in Korean Sericulture School 149
Training girls in spinning silk ... 149
Taiden Experimental Tobacco Farm 149
Specimen of Japanese Tobacco ... 149
„ „ white burley for Cigar-making 149
Korean Children sowing Ginseng ... 151
Nursery Bed of Ginseng 151
Seedling Station, Shinshu, South Keisho Province 152
Local Officials Planting trees ... 152
Disinfecting a Ginseng Garden with Bordeaux Liquid 152
Planting of Pine-trees by high Officials of the Civil Government... 153

CHOSEN EXPOSITION

Panorama of Chosen Exposition held in grounds of the old Palace at Seoul 320
Night Scene showing extrance ... 320
One of the Agricultural exhibits ... 320
Police and Prison exhibit ... 320
Irrigation and Rice Culture exhibit... 320
Exposition grounds showing the circular railway building and the old Palace gate. 321
Manufactures and Liberal arts building 321
Building for educational exhibits ... 321
Manufactures and Liberal Arts Building 323
Koreans awaiting opening of the gates 323
Railway building and old Palace Gate 323
Building for fine arts exhibit ... 323
Interior of new Chosen Hotel ... 325
Fusan Pier where Connection is made by steamer for Shimonoseki and the Japanese Railways 110
Bridge across the Yalu River where connection is made with the Antung Mukden Line 110

ILLUSTRATIONS—FORMOSA

CHOSEN—SEOUL

View of Seoul (Keiyjo) 110
Offices of Oriental Development Co. 110
Pavilions attached to the Shokotu Palace points 110
Korean Coolies with Tripod carrying device which enables them to rest under their loads 110
Bureau of Communications of the Korean Government 112
Nandaimon—The Great South Gate—Seoul 112
Tomb of Late Queen of Korea, Seoul 112
School attached to Korean Agricultural Station 112
Korean Weavers and Spinners ... 112
Korean Pilgrim at Wayside Pagan Shrine 122
Lion Peak of Diamond Mountain ... 114
Ancient Pavilions on River Daido ... 114
Market Day at Taikyu 114
Buddhist Temple in Yutengi, Diamond Mountain 114
Ancient Pavilions at Suigen 115
Bird's-eye View of Seoul 115
Railway Station at Ryusan 115
Chosen Hotel at Seoul... 115
Chu Chi-chien, Minister of the Interior ... 66
Chu Kin-how, Director Peking-Mukden Railway ... ...
Colorado Mining Co. Mill 184
Commercial Car Chassis Repair Shop ... 71

CONSERVANCY ILLUSTRATIONS

Conservancy in China, The South Grand Canal
The Ngo-Yu—"Fish that fights the water"—on a weir 333
Kin Ko Pa near Yen-chow, across the Sze-ho 334
Part of the weir at Chang-Chia-Chiao 334
The Tai-Tsun Weir 335
Remains of Grand Canal between Yellow River and On Hon Chin (This part silted up) 335
Bridge over Sze-Ho River 335
Travelling by wheelbarrow in Shantung 335
Scene on the Po-Ho 337
Where the Ta-ching Ho joins the Yellow River 337
Lower end rapids near the mouth of the Ta-Ching Ho 337
Ta-Ching Ho Embankment near the Yellow River, showing the effects of erosion 337
Staff, South Grand Canal Improvement Works, at Tsi Ning-chow ... 338
Lock on the Grand Canal 338
Dragon, Chinese, Fossils of the 247
Far Eastern Championship Games
Chinese Winning Pole Vault... ... 56
Football eleven of Tsing Hua College 57
Basket Ball Squad and Physical Director 57
China's Contingent of Athletes ... 57

F. M. S. RAILWAYS

Kuala Lumpur Station Hotel ... 275
Ipoh Station Hotel 275
East Coast Railway, Pahang Section 275, 276
Krambit Bridge... 275
Kedah Railway, Muda Bridge ... 276
Machine Shop, Central Workships ... 277
Rubber Godowns, Port Swettenham 267
Kuala Lumpur South Signal Cabin 279
„ „ Goods Yard... ... 279

FORMOSA—TAIWAN

Formosa, Commerce and Industry of. (By Consul Edwin L. Neville, Tansui,) (Illustrated) 189

Taiwan Sugar Company, Sharoken, Mill of the 189
Taiwan Seito Company, Kohekiro, Mill of the 189
Zeiho Gold Mine in Formosa ... 190
Daihoku Station on the Imperial Taiwan Railways 190
Rurun Station on the Imperial Taiwan Railway 190
Taiwan Sugar Company, Kyoshito, Mill of the 101
Formosa, Taiwan, and its exposition.
Keelung, Bund at 392
Removing Cargo at the Takao River 392
Ten Ton Electric Crane Loading Railway Cars 392
Keelung. The first Model Warehouse Building at 393
Thirty Ton Electric Crane being tested to full capacity 393
Governmental paddy granary on the Takao River 393
Yui Sung Peng Bridge 394
Ta Kan Chi Bridge 394
Na Zeu Chuen Bridge 394
Court of the Governor General ... 394
Taihoko Temple... 395
Electric Light Works under construction at Loh Kwe Li 395
Electric Light Works at Ieu Li Zeh... 395
Roadway along Irrigation Canal ... 395
Ieu Li Zen Dam and Sluice 395
Sze Taz Den (Lion's Head) dam and its sluice 395
Taihoku Water-works 395
Making Iron Wire Dike Forms ... 397
Iron Wire dike system in place ... 397
On the great Oak River 397
Taihoku Hospital 397
Fossils of the Chinese Dragon, a Cave on the Upper Yangtsze.
Near View of Fossil Dragon... ... 248
Cave showing Coiled Fossils... ... 248
Near View of Scale Formation ... 248
Showing spinal prominence 248
Furnace Retorts, Figures of, at O-Yin Shan, Yunnan 222-223
Harbin, Jewish Synagogue at 416
Higgins, Horace L., President of Manila Railway... 357

HOKKAIDO

Hokkaido Timber Industry, The... ... 388
Hokkaido Lumberman's Camp ... 389
Japanese Lumbermen Sawing and Barking Log 389
Nohoro Forestry Experiment Grounds in Hokkaido 389
Hokkaido Timber waiting Shipment 390
Pine Afforestation at Yunokawa ... 390
Home Products Exhibition. The opening Ceremony at the 174
Honan Mine, Peking Syndicate's... ... 294
,, Washing River sand for Gold ... 135
,, Road in 461
India, Southern Shan States Railway,The 356
Ipoh Station Hotel 275
Japan, Imperial Government Railways of 360
Lake Ashi at Hakone 360
Famous Torii at Itsuku Island near Miyajima 360
Colossal Buddha at Kamakura ... 360
Iris Garden near Tokyo 361
Viewing the Chrysanthemum Garden 361
Osaka Street in Holiday Attire ... 361
Himeji Castle built in XIV Century 361
Maiko Park renowned for distorted Pine Trees 364
Arashiyama Bridge near Kyoto ... 364
Water Pierced rock near Matsushima 364
Japanese and Chinese Delegates in the recent negotiations 24
Kalgan, Former Terminus of Railway ... 28
,, to Mongolia, main route 463
,, Pass, Motor Car on the 464
,, Pass, Road through the 463
Kedah Railway, Muda Bridge 276
Keelung, See Formosa.
Koo, Dr. V. K. Wellington, Chinese Minister to Mexico 87

KOREA—see CHOSEN

Kuala Lumpur Goods Yard 279
,, Station Hotel 275
,, South Signal Cabin ... 279
Kweichow, Roads in... 464
Limestone slope near Loshue covered with debris 208
,, A horizontal tunnel cut through (near Moulu) ... 211
Linwu Tin Mines 136
Liulincha Gold Mines 134
Malaguit (P.I.) Dredge, Digging Ladder of 185
Manchuria. Mongolian settlement in North 419
Manchuria. Russian Farm in North 415
Manchurian Farm House 416
,, Grain boats near Harbin 416
Mongolian Household in holiday attire... 419
,, Market encampment 418
,, Carts camped on the road ... 452
,, Plateau, Road on the 462

MONGOLIA

Urga, Mongolia's Metropolis, General View of 2
Lamas, One of Mongolia's Grand ... 2
Bogdo Kahn, the Hutuketu 2
Kiakhta 2
Bogdo Kahn's Residence at Urga ... 2
Kiakhta's Commercial Quarter—Maimaicheng 2
Mongolian & Russian Officials who negotiated the Former Treaty ... 4
Nomad's Yurt or Tent, Mongolian... 4
Kiakhta, Customs Station 4
Mongol Settler's House 4
Lamas of Kalachin 6
Urga Russian Consulate 6
Mongolia's Vast Pasture Lands ... 6
Woman's Dress, Mongol 6
Typical Mongol Herdsmen 6
Bullock Carts, Mongolian Vehicles... 8
Mongolian Shrine, Pilgrims on way to 8
Mongol-Chinese Borderland, Lamas.. 8
Hutuketu, Mongolian Cavalry waiting to take part in Review ordered by the 8
Gobi Desert of Mongolia, Nearing the Great 10
Caravan at rest in the Desert... ... 10
Caravan route skirting the Gobi Desert, View along 10
Sansing, an Important Town in Northeastern Mongolia 11
Kiakhta and Urga, Chinese Colonists between 11
Mongol Official on Inspection Tour.. 11
Camel Herd on the grazing grounds of Mongolia 11
Oak River on the great Formosa... ... 397
Panang Section, East Coast Railway ... 275
Paracale District, P.I. Gold Dredging at 183
Patungla China Quicksilver Mines ... 136
Peking-Kalgan-Tatung Railway, Views 28, 29
Pekin Syndicate's Honan Coal Mine, Views of... 204

PHILIPPINES

Philippine Islands. Albay, Kabangan Barrio School, Camalig 268
Bulacan, A Well-Kept School Garden. 271
Cocoanut, Filipino stripping husks from. 140
Copra Industry, Philippine 139
Copra Tapahan or drying Kiln ... 140
Copra Sun-drying in Southern Philippines 140
Laguna Copra sacked for shipment... 140
Education in Philippines.
Students of the Philippine school of Arts and Trades at work on the Education Building 267
Dalirig Settlement Farm School ... 267
Moro Schoolhouse at Dansalan ... 267
Kabangan Barrio School, Camalig, Albay 268
A Class in basketry, Philippine Normal School, Manila 268
San Andres Primary School, Manila, 268
Working a Steam Hammer, Philippine School of Arts and Trades ... 269

Students at work in the wheelwright Shop, ... 269
Students clearing new land, Lagangilang Industrial School, Abra, Ilocos Sur 269
Indoor Baseball (out of doors) near Paranaque, Rizal Province ... 271
School Garden, San Andres Primary School, Manila 271
Well-Kept School Garden, Bulacan, Bulacan 271
Tondo Public Playground, Manila, 272
Calisthenic drill by 2,000 school children, ... 272
Athletes attending the Inter-Visayan Meet, 1913 272
Gold Dredging at Gumaos in Paracale District 183
Philippine Islands Mining 183
Gold Dredging at Gumaos in Paracale District 183
Masbate, New Mill of Syndicate Mining Co.,... 183
Head Bin and Site of Syndicate Mines 184
Quarters of Miners on Syndicate Claims 184
Mill of Colorado Mining Co. ... 184
Philippine Railway Co. Views of
Market Day at Santa Barbara ... 107
Corn Demonstration in Market ... 107
Fiesta Train arriving at Cebu Station with 1200 Passengers 108
Agents' Night school, Cebu Division 108

PHILIPPINE WOODS AND TREES

Philippine Woods for the China and Foreign markets.
A modern sawmill in the Philippines 88
A typical scene in a Philippine Dipterocarp Forest 90
Dragging logs out of the Philippine Forests by Man-power. 90
Filipinos whip-sawing lumber in the Philippines. 91
Hauling logs by Carabao. 91
Steam logging the Philippines in ... 91

PHILIPPINE WOODS IN CHINA MARKET

Typical View of Hardwood Forest 348
Philippine Forest Trees—Island of Negros 348
Pineclad Mountains of Island of Luzon 348
Mangrove Swamp showing Larger trees of Pagatpat 348
Shea logging engine starting for the forest 350
Logs floated down river about to enter mill 350
Hauling Logs from river into Mill... 350
Lumber sheds with export stock piled for seasoning 350
Second Floor of Mill showing trimming saws 350
Saw Filing room of Insular Lumber Co's Mill 350
Insular Lumber Co's Mill—Sorting and distributing tracks 351
Philippine Forest giant showing buttressed base 351
Forest with undergrowth cut away... 351
Logs of Pagatpat ready for shipment to China Mausoleum of Emperor Kuang Hsu 352

PINGSIANG COLLIERY

Panorama of the Pingsiang Colliery Han-Yeh-Ping Coal and Iron Co. 375
Chang Shou-Chan, the Company's first Manager 575
Head Frame for main shaft 376
Pingsiang, View of 376
Vertical shaft and slate dump ... 377
Chinese Coke Ovens 377
Railway Station and the Works Yard 378
Hospital and Office Building... ... 378
Bowley, Major, United States Military Attaché, and Manager Leinung after a visit of inspection 379

ILLUSTRATIONS—SIAM

Cooling Coke from the Ovens.. ... 370
Administration Building 380
Loading Coal from Cars to Barges... 389
Port Swettenham, Rubber Godowns. 277
Printing and paper in China and Japan, Reduced facsimile of earliest extant Chinese wood-cut, printed A. D. 1331 195
Motogi Nagahisa, who introduced the European method of printing and typecasting into Japan ... 196
Japanese printer and his outfit, A ... 197
Japanese print by the artist Hokusai 197
Phosphate Mines angaur Island... ... 49
Pine-trees, Planting of 152
Railway from Kaifeng to Hsuchowfu ... 101
Salt Manufacturing and Shipping 15, 17, 18, 19
Shansi, Peking Cart in 463
„ Planks from the hills of ... 463
„ Roads in 461, 462, 465
Shantung, Road in 465
Shinshu, South Keisho Province Seedling Station 152
Shuikuoshan lead and zinc mine 134

SIAM

Siam Royal State Railways of
Station at Petriu, Siam 365

ILLUSTRATIONS—YANGTSZE

Steel Bridge over Klong Tha Law ... 365
Street Scene near Bangkok Station. 367
Station at Klong Sensep 368
Typical Smaller Station Building ... 368
Swatow Waterworks, Views of 61, 62, 63
Taihoku Hospital, The 397
Tai-Yuan-Fu Plain, Shansi, Road on the 461
Tatungfu, Terminus of 28
Tientsin Mills Cotton Machinery... ... 255
Tientsin's New Telephone system ... 248
Exchange Building 249
Switchboard Lineup 249
Toll Switchboard 249
Installation Work on Underground Cable 249
Gas Engine 249
Storage Battery... 249
Power Board and Machines 249
DistributingFrames 250
Switchboard Room 250
Underground Cable Entrance ... 250
Tsitsihar, the capital of Heilungchiang... 418
„ Mergen Highway, Russian Transportation on the ... 417
„ Yamen of Chinese Governor at 418
Tuan Chi-jui, General, Premier and Minister of War... 429
Yangtsze River near Tiechang, A tributary of the Upper 211
Yangtsze River near Yentsin 207

ILLUSTRATIONS—TINGCHOWFU

Yutung Tin Mines Ore Dressing Floor... 136
Yunnan Blast furnace Tonghai 221
„ Kweichow Frontier Salt Market 220
„ 9000 foot hills near Tungchwan 219
„ Road in 400
„ Talifu Street 215
„ Valley near Chaotungfu... ... 219
„ Weining Plateau 220

MAPS AND PLANS

Chefoo, Proposed Mole and breakwater at 433
Chien-Men (Gate) Peking... 66
China, Relief map of, showing the relation of plains to Mountains ... 81
Map of Mongolia Prepared by the late Lieut. G. C. Binsteed, D. S. O., to show areas occupied by the various Khanates 1
Northern Manchuria, showing new lines from Tsitsihar to Blagoveshchensk via Mergen and from Hulan (Harbin) to Mergen 417
Peking-Kalgan-Tatung Railway, Route... 27
Shan States Railway 356
Siam, Sketch Map of Railways in ... 356
Siberia, Part of the Amur Region, ... 285
Suifu to Yunnan-fu, Lead Route from... 218
Tingchowfu Copper Mines, Sketch Map 209

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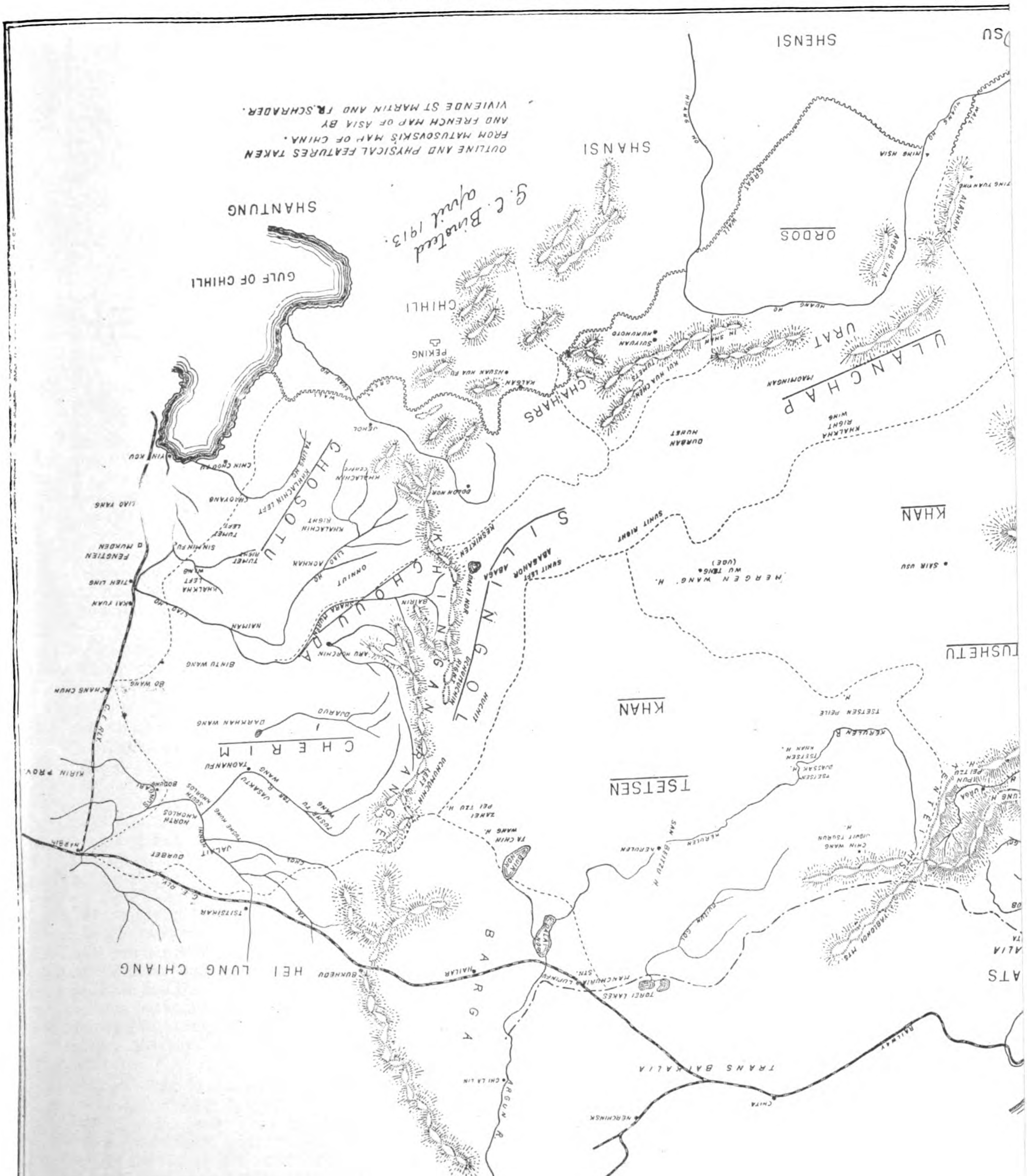

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THE QUESTION OF OUTER MONGOLIA

(BY THE LATE W. W. ROCKHILL, FORMERLY AMERICAN MINISTER TO CHINA.)

The reversal of Russian policy which followed the termination of the war with Japan was caused, not only by a realization of that country's military power, but also by the manifest signs that China was adopting a forward policy and that her successful assertion of her rights of sovereignty over her outlying dependencies, Mongolia and Tibet, and her possible ulterior political union with Japan, would expose the sparsely peopled and very imperfectly developed far-eastern provinces of the Russian Empire to the pacific encroachments and their possible ultimate economic subjugation by the yellow races—the Jews of the East.

Henceforth the dominant idea of Russian policy became the salvation at all costs, of the provinces east of the Baikal from the yellow peril, and the building up in them of a strong, homogenious Slav bulwark, which could successfully resist its insidious attacks.

In order to attain this end and to rid herself of this obsession, Russia has not hesitated within the last few years to sacrifice substantial interests, and to pour out vast sums of money in the maintenance of her position in her far eastern provinces and Northern Manchuria. She has concluded a series of conventions and agreements with Japan conceding her various valuable rights, and gaining only, in return, a sense of greater security for the future. She has seriously retarded the development of the Pri-Amur provinces, into which Russian emigrants come reluctantly at best, by the passage of laws against yellow labor, and has discriminated against Northern Manchurian trade generally, but her efforts to increase thereby Russian colonization, agricultural development and the supply of white labor in these regions, have had but the smallest modicum of success. Finally, she has been led to adopt a forward policy in Northern Mongolia and to attempt to create there a buffer state, in the hope of arresting in that direction the peaceful penetration of the dreaded Chinese.

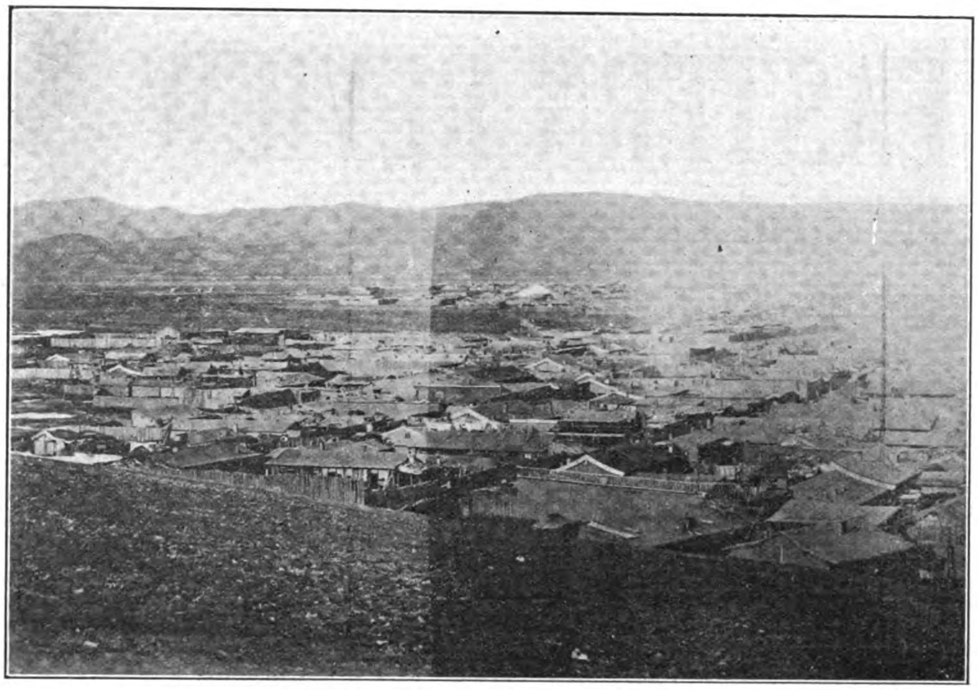
Russia's action in Mongolia is without doubt purely defensive; begun with hesitation it has been followed with some misgivings, but in all its stages it has been, as I hope to show in this paper, in perfect conformity with the general policy in Eastern Asia pursued for the last six years, and which is based on the profound and general belief among all classes in the yellow peril.

The historical and political side of the question of Outer Mongolia is briefly as follows: In the latter part of the 14th century the Khalka Mongols, driven from Southern Mongolia by the first Emperor of the Ming Dynasty, took up the country which they now occupy, and which lies south of Siberia, from Kobdo on the west to near Hei-lung-chiang on the east. They led an independent existence until the latter part of the 17th century, when a war broke out between them and their powerful neighbors, the Celöt Mongols, in which they were defeated and driven to seek the aid of the Chinese. The great K'ang-hsi was then on the throne of China. In 1691 he called a great durbar of the Khalkas at Dolon-nor in southeastern Mongolia, and there the Princes of Outer Mongolia gave in their submission to China, and accepted vassalage. Very recent Russian writers have asserted that on this occasion the Khalkas only accepted Chinese suzerainty on three conditions: (1) that their country should not be colonized by Chinese, (2) that no Chinese troops should be stationed within it, and (3) that their internal organization and customs should be respected. I have not been able after careful search to find any contemporary Chinese or foreign document which bears out this assertion, and I am inclined to doubt its accuracy. Du Ralde (Déscription IV, 53) quoting presumably from the writings of Father Gérbillon, who was present at the great durbar of 1691, says: "And so this war (with the Celöts) was ended to the glory of the Emperor, who has become the absolute Master of the whole Empire of the Khalkas and of the Eluths, and has extended his dominion in Tartary to the confines of the Moscovites, which are for the most part bare and uninhabited forests and mountains." The Khalkas have, however, claimed, at least in the preamble to the Urga Convention, if in no other official document, that the recent violation by China of these terms was the principal cause of their secession.

One of the principal instigators, if not the chief one, of this unfortunate war was a Mongol Lama, the brother of one of the most powerful princes of the Khalkas. He had been appointed by the Talai Lama of Tibet, the head of the Buddhist church in Outer Mongolia, and he bore the title of Jebtsum-damba Hutuketu. Shortly after his installation in 1650 he sought to create a schism in the church, and he had himself recognized as temporal ruler of the country. He was the first of the line of theocrats, all bearing the same title as he, which has since then practically ruled over the Confederation of Khalka Tribes.

In the middle of the 18th century the then Hutuketu established his permanent residence at the foot of a sacred mountain called the Bogdo ula, which may be the burial place of Genghis Khan, and along the base of which flows the Tula River, an affluent of the Selenga. Near by a lamasery called Gadän was founded, and around it grew up the present town of Urga, Iké Kurê or Ta Ku-lun, as it is variously called, and which remains the only "city" of Outer Mongolia, though it ill deserves the name, notwithstanding its 30,000 odd inhabitants, of whom probably a third are lamas.

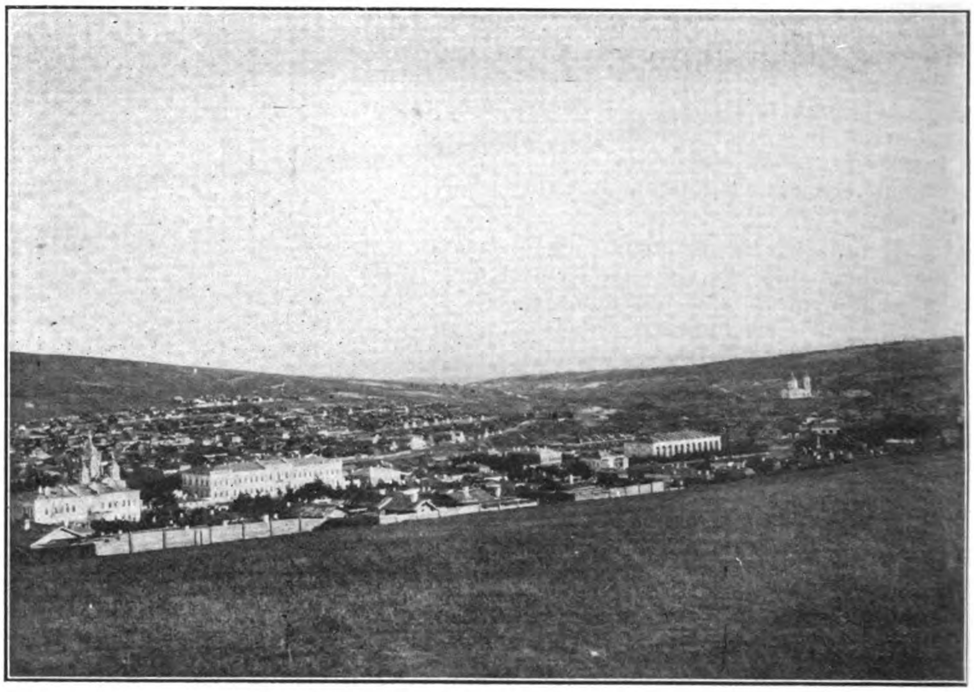
The first Hutuketu dying in 1724 was succeeded by another Mongol, but as he continued the separatist intrigues of his predecessor, causing thereby internal dissensions, the Chinese Government decided in 1754 that the secular affairs of the country should be managed by a body of laymen, over which shortly after a Mongol Governor was appointed as President. In 1757 the second Hutuketu dying, it was decided by China that his successor



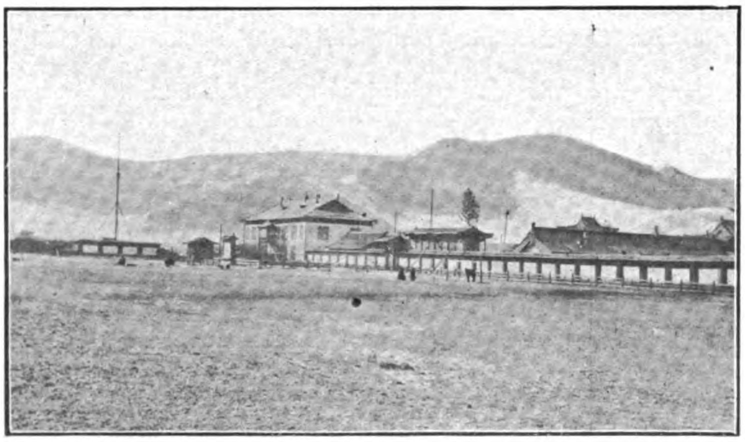
General View of Urga, Mongolia's Metropolis

One of Mongolia's Grand Lamas

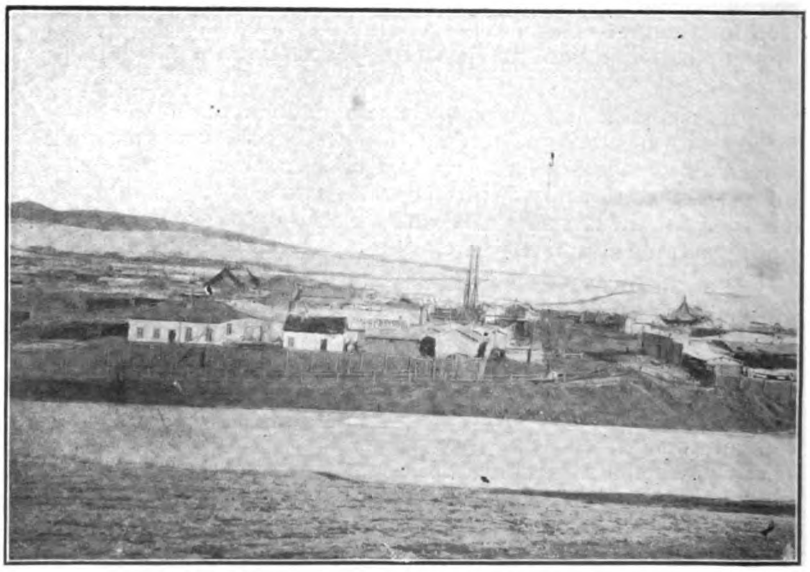
Bogdo Kahn, the Hutuketu



Kiakhta, where the Conference was Held



Residence of Bogdo Kahn at Urga



Kiakhta's Commercial Quarter—Maimaicheng

should be a Tibetan, whose appointment should be confirmed by Peking, and, further to insure the submission of the Khalka tribes, a Manchu Resident or Ambam, with a small escort, was sent to Urga in 1761, and a Tartar General to Uliassutai. Such has been substantially, till the year 1912, the organization of Outer Mongolia; the 86 *Khoshun* or "Banners" forming the four *Aimak* or "Tribes" of the Khalkas, enjoyed practically autonomous government, subject only to certain light charges and to minor restrictions on their general liberty of government, and without the presence of any Chinese troops within their confines, though Chinese traders and farmers have probably always been welcomed among them; at all events they have never been molested.

Shortly after the Khalkas took up their abode in the region confining on Siberia, the Russians entered into trade relations with them, first from the town of Selenginsk, which was founded in 1666, and later on (from 1727) from Kiahkta on the frontier between the two countries.

It was only in 1860, however, that Russia obtained by the Treaty of Peking (Article V) the right to establish a consulate at Urga, and that Kalgan, on the southern border of Mongolia, was opened to her trade. Shortly after, the present Russian consulate was built to the east of Urga, between it and the Chinese trading town called Mai-mai-cheng, and a Russian Buriat Mongol, Shishmarew by name, was appointed to fill the post. This he did for nearly fifty years, his successor having only been appointed in or about 1908.

In 1869 Russia and China signed a further convention at Peking for the land trade between the two countries. Article I provided for a free trade zone of a hundred li (30 miles) in the two countries along the whole of their frontiers, while Article II stated that "Russian merchants shall be at liberty to proceed to all parts of Mongolia—for the purposes of trade, and shall likewise be exempt from the levy of duty." This franchise (the Chinese always sought to limit it) accorded to Russian trade in Mongolia was re-affirmed in 1881 in the Treaty of St. Petersburg, Article XII, with the proviso, however, that "this immunity shall cease when the development of trade shall necessitate the fixing of a customs tariff, after agreement between the two Governments."

Article XV of the same treaty provided for a decennial revision of this instrument if one of the contracting parties gave notice six months before the expiry of the term, so in 1910 Russia gave notice to China of her desire to negotiate a revision, in the hope of securing a further extension of the free trade enjoyed by her in Mongolia, which alone enabled her traders' to compete there with the Chinese. The Chinese Government was then in the full flush of their "rights recovery policy," and intent on nothing less than the absorption of Mongolia, the New Dominion and Tibet, and their transformation into ordinary provinces of the Empire, with the consequent establishment of Chinese administration, an influx of Chinese immigration and (in the case of Mongolia) its occupation by the military forces of the Empire, with, of course, the application of the general customs tariff, in which measures Russia saw great peril to her thinly populated border lands and the destruction of her trade.

The establishment of a considerable Chinese military force at Sharasumé on the Russian frontier west of Kobdo, coupled with the impolitic activity of the Urga Amban, San Toa, who began erecting barracks for troops, taking steps to enrol the Mongols, browbeating the Hutuketu, the princes and the people, and otherwise showing the lamentable lack of tact and discretion which is a marked feature of the "Young China" reformer, all this confirmed the Russians in their apprehension of Chinese aggression along the whole line of their frontier. The dilatoriness of Peking in replying to Russia's request for treaty revision was an additional source of irritation to the Government of St. Petersburg, and so in the winter of 1910-1911 a small body of troops was concentrated at Semipalatinsk to counteract the presence of the Chinese at Shara-sumé, and, shortly after, in March, 1911, a peremptory demand was sent to Peking asking the confirmation of Russia's rights under the Treaty of 1881. To this China made no definite reply and the matter remained in suspense while unrest grew in Outer Mongolia. Provoked by San Toa's stupidity, by the rising revolution against the Manchus, and undoubtedly relying on eventual Russian support as Russia had so frequently of late years announced her "special interest" in Mongolia, the Khalkas on the fall of the Manchu Dynasty, expelled the Amban and on December 29th, 1911, declared the severance of all political ties with China, and chose as their ruler the present profligate Jebtsun-damba Hutuketu, the eighth suceessor of him who had brought about the subjecting of the Khatlka so the Manchu rule.

There can be but little doubt that the Russians must have viewed with real satisfaction the secession of Outer Mongolia, for it supplied them the means of preventing further Chinese pressure on their borders and of permanently securing the trade privileges they claimed under the Treaty of 1881 while running little danger of embroiling themselves seriously with China, with whom they desired to remain, if possible, on the best of terms.

It cannot be denied that the Mongols had good grounds for wishing to put an end to their political relations with China. Their oppression by the officials sent among them was notorious, and it has been acknowledged by the present government of China. The charge of official malfeasance could not be more strongly put than by Yuan Shih-k'ai in his Proclamation to the Mongols and Tibetans of March 26th, 1912. "In recent years," he says, "the high officials sent to these border lands have been worthless, all have been most overbearing, there has not been a single one who has endeavored to put an end to the deception and cruel oppression practiced on these people. So hostility to China has been aroused everywhere and discontent has grown general. A source of deep sorrow indeed."

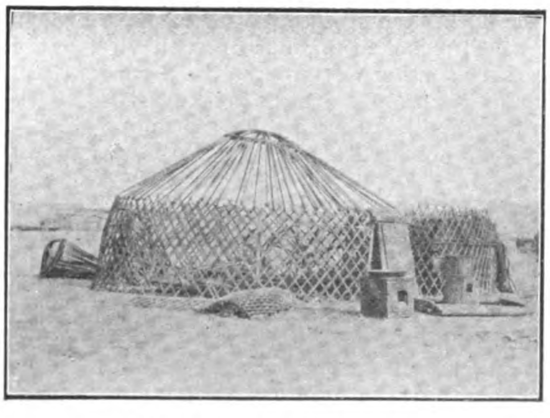
There appears good reason for believing that when the idea of secession was made known to the Russian Government by the unofficial mission which came to St. Petersburg in the summer of 1911, very little encouragement was actually given it at the Foreign Office and, though the then Russian Minister at Peking, Mr. Korostowetz, professed the most friendly feelings for the Mongols whom he thought should be helped, and so advised his Government, the Foreign Minister only tendered the mission his unofficial good offices with China. But immediately after the Mongol Declaration of Independence, the Russian Government announced that the Mongols held (1) that the establishment of Chinese administration in Mongolia, (2) the presence of Chinese troops, and (3) the colonization of Mongol territory, were incompatible with their rights, and that in view of Russia's large interests in Mongolia she could not ignore the *de facto* government, and that they would enter into business relations with them. Furthermore the Russian Government advised Peking that, subject to a recognition of these fundamental rights by China, Russia was willing to act as mediator between it and Mongolia to bring about an agreement between them. No reply having been received from China, Russia decided, some months later, upon independent action.

In the early part of 1912 the Mongols, replying to Yuan Shih-k'ai's Proclamation of March 26th, refused to participate in the establishment of a republican form of government in China; the Russian Government then concluded that the time had come when it could not only secure from the new state the commercial privileges in Mongolia which it had been seeking from China, but also, while maintaining its friendly position toward that country, raise up in Outer Mongolia the barrier against the yellow peril which it looked upon as of such vital importance to the security of its southern frontier. So a convention with the Khalkas embodying these essential principles of Russian policy was determined upon and in the autumn of 1911 Mr. Korostewetz was appointed Diplomatic Agent to Outer Mongolia and arrived at Urga to put through the negotiations. He met with considerable difficulty and had to use pressure and make various promises to attain his end, for the Mongol princes were divided in opinion; Russia wished to confine the new state to Outer Mongolia, whereas many of them wished the new Mongolia defined on purely racial lines. Again Russia limited her friendly offices to assisting the Mongols to maintain, not an independent state, but simply an autonomous regime. The principal opponent of the treaty was the very intelligent and influential Ta Lama, Tsérin-djigmed, Minister of the Interior, who was inclined to seek an arrangement with China, as more

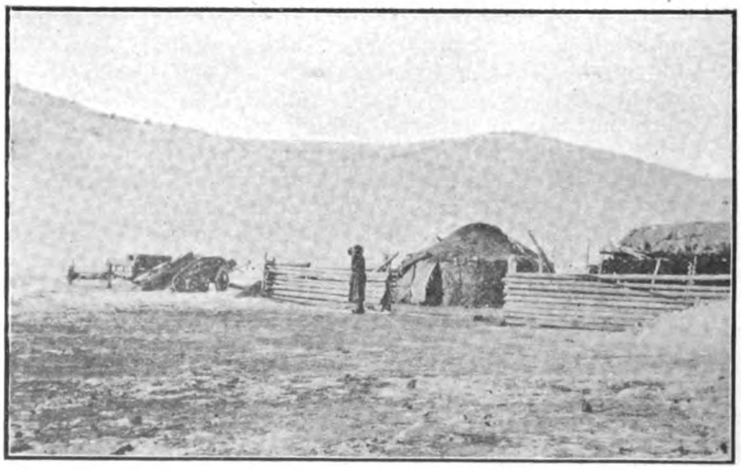
Group of Russian and Mongolian Officials who Negotiated the Former Treaty

Mongolian Nomad's Yurt or Tent

Customs Station at Kiakhta



Yurt Ready for Cover of Skins



Mongol Settler's House

likely to prove ultimately beneficial to the Khalkas, but the convention, notwithstanding his opposition, was promptly pushed through, and signed on November 3rd, 1912, coming into force on the same day. The Urga Convention, with its annexed Protocol, is short and to the point; in consideration of Russia "lending her assistance to Mongolia in preserving the autonomous regime it has established, as well as the right to have her national army and to admit neither the presence of Chinese troops on her territory nor the colonization of her land by Chinese," the Mongols concede to the Russians the most complete freedom of trade (but no right of monopoly) "in every kind of product of the soil and industry in Russia, Mongolia and China." They further promise them the most favored nation treatment and give them the right to control any treaty arrangements they may wish to enter into later "with the Chinese or another foreign power" and which may infringe or modify this convention.

The Urga Convention was received in China with howls of disapproval from the noisy "extremist" politicians then forming the majority of the Parliament in Peking, who clamored for war with Mongolia and if need be with Russia, as the only proper reply. Russia persisted in asking China to recognize autonomous Mongolia, using the identical terms first stated by her a year previously, though, considering the provision of the Urga Convention which gives Russia the right of control over Outer Mongolia's treaty relations, the offer of a recognition of the suzerainty of China over it appears utterly meaningless. It was only on November 3rd, 1913, after protracted discussion and some indirect pressure on the part of the Russian Minister, Mr. Krupensky, that he signed with the Chinese Minister of Foreign Affairs, a Declaration, by which Russia recognized Chinese suzerainty over Outer Mongolia, while China recognized its autonomy, its exclusive right to settle all questions of a commercial and industrial nature concerning it; Russia pledging herself likewise to send no troops to Mongolia beyond consular guards, nor to intervene in the administration of the country and not to colonize it.

The right to send a Chinese "Dignitary" with an escort to reside at Urga "in case of need," and agents to certain localities in Mongolia for the protection of Chinese interests and subjects was also recognized. Finally, China accepted Russian mediation to establish relations with Outer Mongolia in conformity with the provisions of the Urga Convention. Notes exchanged on the same day by the signatories of the Declaration stated that as to questions of a political and territorial nature affecting Outer Mongolia, the signatory powers would enter into negotiations in which the authorities of Outer Mongolia would take part, and it was further stated that autonomous Outer Mongolia included the territories previously under the Ambans at Urga and Kobdo, and the Tartar General at Uliassutai, the limits of these territories to be settled in the negotiations *a trois* previously agreed to. And so once again China bowed to the inevitable.

The majority of the princes and other chiefs of the Khalkas being strong "nationalists," in favor of the complete independence of their country, it was but natural that the Peking Declaration should be viewed at Urga with open displeasure. When I was there in December of 1913 some of the Mongol Ministers frankly declared that negotiated as it had been over their heads, they absolutely repudiated it. If a remnant of Chinese authority remained they thought it was but a question of time before they would again be under actual Chinese control. For them there were but two alternatives, absolute independence or annexation to Russia,—the latter solution, they said, they liked as little as Chinese suzerainty. To this the Russians replied that the Mongols would take a share on a footing of perfect equality in the negotiations soon to be held at Kiahkta, as provided for by the Declaration, and also in all future ones, but the Khalkas know they are helpless and that, for the time being at least, their fate is sealed, for while Russia for the attainment of her own ends is desirous to keep back the Chinese from Outer Mongolia, she is not desirous to assume the unknown responsibilities which an independent Mongolia would certainly impose upon her.

The responsibilities which Russia has already incurred in Outer Mongolia are great, and the difficulty and importance of permanently establishing her political and commercial supremacy in the country are daily becoming more fully recognized by her.

The Khalkas, it must be borne in mind, are a purely pastoral people, some 700,000 in number,* occupying a very extensive territory only suitable for agricultural pursuits in some of the valley bottoms. Outside of a slight knowledge of reading and writing (the reading being nearly entirely confined to religious works) they possess absolutely no education, nor has their form of civilization advanced at all since the middle of the 13th century when they first became known to us, except by the introduction among the well-to-do people of a few domestic articles used and manufactured exclusively by the Chinese, and by the present rather general use of stuffs, silk, cotton and woollen, of Chinese, foreign and Tibetan origin, instead of the furs and skins of which they used formerly to make their clothing. The Southern Mongols, it should be noted, on account of their proximity to and constant intercourse with the Chinese, are much more advanced and self-reliant; education of a sort has made some slight progress among them and they are given, to a certain extent, to the tilling of their lands.

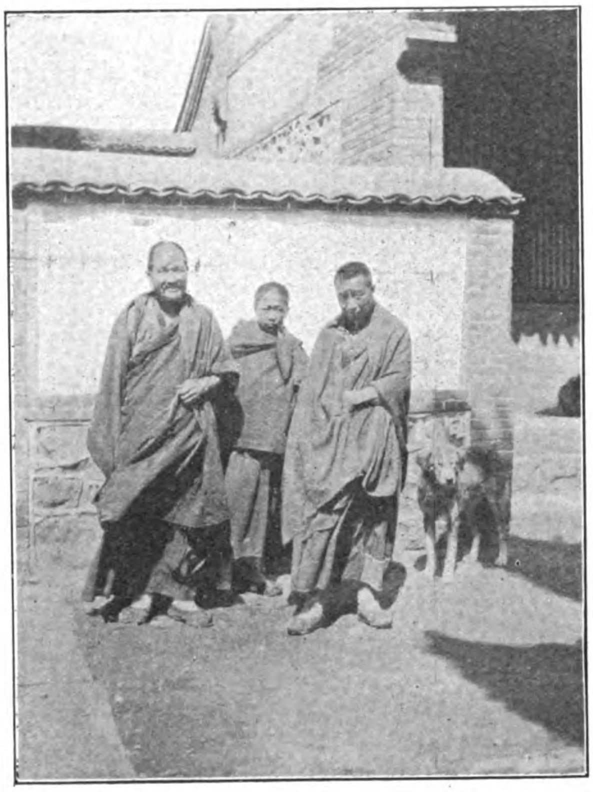
Exclusive of tending their flocks of sheep, their ponies, camels and cattle, the Khalkas know no trade, nor do they care for anything else; easy-going and lazy, they are the most gullible of men. They cannot manufacture a single object used in their simple way of living save an inferior quality of felt and tent frames. Everything else is bought in China or brought to them by the Chinese; even their saddles, bridles, boots, teapots, wooden cups and numerous other articles come from there. Were it not for the Chinese farmers (mostly from Shantung) who have irrigated in many places the fertile lands of the larger valleys and raise wheat and millet for them, they would be reduced to an exclusive diet of meat, butter, milk and cheese.†

With the loose political bonds which hold the tribes together the taxes are paid by the people to their princes, who, while not paying taxes themselves, must hand over a portion of their incomes to the Hutuketu and to the innumerable rapacious lamas who swarm in every corner of the land, and another still until recently to the Ambans and to the Chinese, with whom they have business relations; for Mongol princes have always been the principal traders of their tribes. All this has effectually prevented the creation of any central government, if the desire to establish one ever existed, or of a national treasury. Furthermore the incidence of taxation is everywhere most irregular, and the levying of the taxes always attended with great difficulty. To add to the burden of the Khalka taxpayers a considerable portion of the population (some persons at Urga told me it might amount to 50,000) are serfs of the Hutuketu, *shabin*, and as such neither pay taxes nor own property of their own, but labor solely tending the numerous flocks and herds of that dignitary. Even the royalties paid by the Russian Mongolor gold mining company went to add to the revenue of two of the princes: there was not, at the time of the Declaration of Outer Mongolia's independence, a single revenue on which it could count.

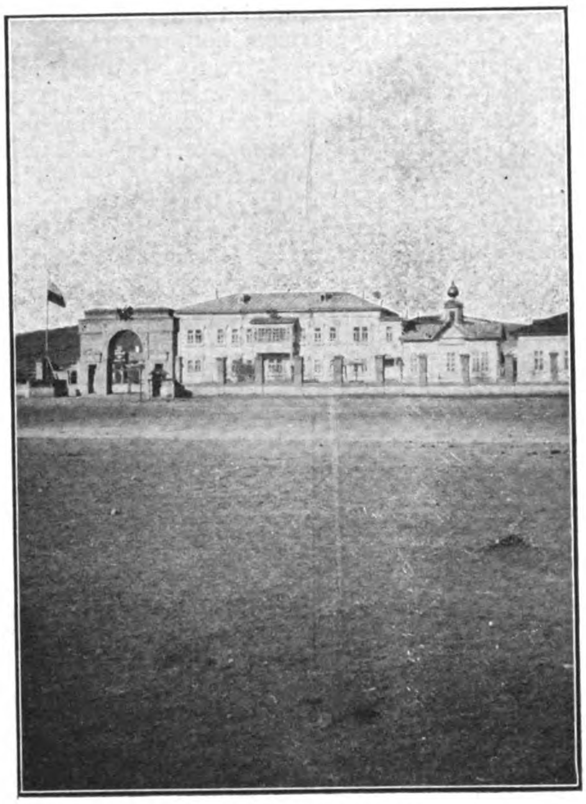
The financial question was consequently the first which faced the Russians when they lent their aid to the Mongols to support their new government. The simple process had recourse to was making a gift to the Hutuketu's government of two million roubles. The way part of this sum, at least, was promptly expended by the Mongols is an illustration of the state of blissful ignorance of the value of money in which they live. They erected an imposing temple, in which they put a colossal image of the Buddha Maitri of gilt copper, and ordered ten thousand small images to be placed on the walls of the temple around it; nine thousand being ordered in Russia at a cost of Rbls. 144,000, and one thousand in China at a cost of Rbls.

* The population of Outer Mongolia seems to have decreased considerably. In the middle of the 17th century it was estimated at 600,000 families or about three million. Du Halde, Déscription de l'Empire de la Chine, IV, 46.

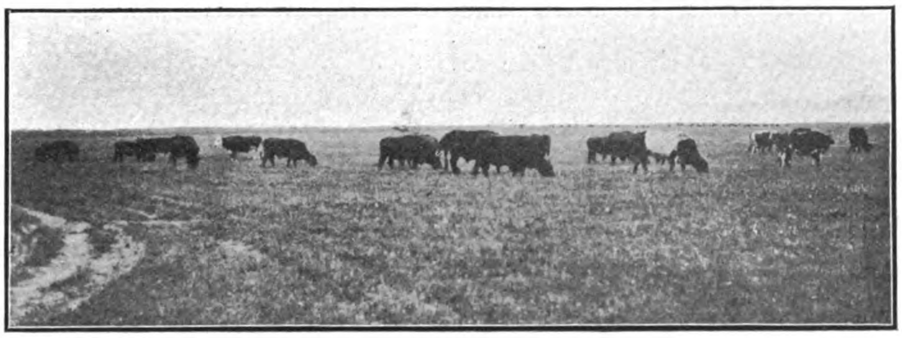
† There are said to be about 20,000 Chinese in Outer Mongolia, 5000 of whom are in Urga, 2000 to 3000 at the Mongolor gold mines in summer, in winter they add to the Chinese population of Mai-mai-chen and Kiakhta.



Lamas of Kalachin, Inner Mongolia



Russian Consulate at Urga



Vast Pasture Lands of Mongolia

Mongol Married Woman's Dress

Typical Mongol Herdsmen

36,000. They have also had made in St. Petersburg at great expense insignia for an order, the order of the Vadjir, which has been freely distributed to Russian officials, and in the creation of which foreign suggestion must have played a large part, as decorations were previously unknown among them.

Their first success at raising money encouraged the Mongols to believe that they could get more from the same source, especially as the missions they sent to St. Petersburg to thank the Emperor and his government for their bounty were received with honor and loaded down with decorations and presents. So they asked for a loan of three millions of roubles, and, pending its being granted, they have tried to make shift with small sums of ten or twenty thousand roubles borrowed wherever they could, usually from the Russian government. Prior to the declaration of independence they had got at odd times considerable sums from the agent of the Chinese bank (Ta Ch'ing Bank) at Urga. When the last Emperor abdicated, the Mongol Minister of Foreign Affairs settled this indebtedness by declaring that, as there was no longer any Ta Ch'ing Dynasty, the Ta Ch'ing bank had also ceased to exist, and consequently there was no creditor to whom the money was due.

The Russian government in their first zeal to lend their support to the nascent state suggested that it would be advisable, for the purpose of establishing credit and developing trade, to open a Russian bank at Urga, where the Russo-Asiatic Bank had sometime before closed its doors. The Khalkas began at once to clamor for the bank, such an institution being, according to their views, one which supplied unlimited amounts of ready cash to all comers. They are still clamoring for the bank, but Russian banks seem disinclined to try the venture, though it seems probable that one will be ultimately established there, but the infantile incompetence of the Khalkas in all money matters becoming more and more apparent to all observers, the bank has still to be opened, and the loan is not yet granted. It is generally agreed among well-informed Russians that no large credit or revenue should be made over to the Hutuketu's government unless there is effective supervision as to its expenditure, and this the Russian government have pledged themselves not to do by Article III of the Peking Declaration of November 5th, 1913.

If the Russian government is not disposed to bear permanently nearly the total burden of administering Outer Mongolia, sources of revenue must be found in the country; but here again difficulties are numerous. We have referred previously to the disposition made of the direct taxes levied on the people. However small they may be, it seems highly improbable that they can be increased, as the majority are very poor. A source of considerable revenue should be an import tax, but this, it would seem, is dried up completely at its source, for Russia has free trade in Outer Mongolia "for products of Russia, Mongolia and China," and the last named country cannot be expected to accept less favorable treatment; consequently should a customs duty be imposed on her export trade with Outer Mongolia it seems infinitely probable that she will adopt retaliatory measures. The trade of other foreign nations—unless they can secure directly from Outer Mongolia the same trade privileges as the Russians enjoy—will be carried on under the Russian flag; the net result is no revenue whatever from any foreign trade.

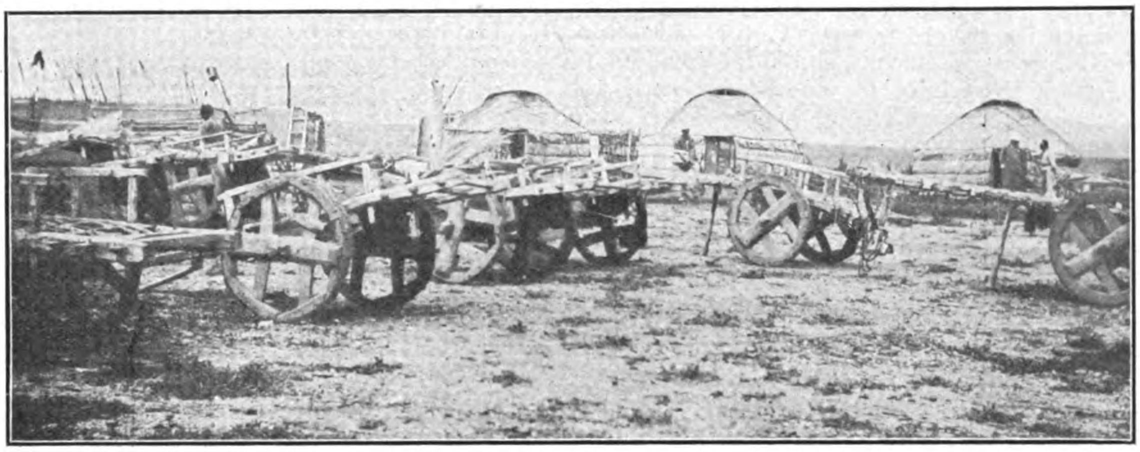
Suggestions have been made to the Khalkas for raising revenue by taxing liquor and tobacco; levying a poll-tax on the Chinese; even the issuing at short intervals of new and attractive postage stamps has not been omitted from these suggestions, but they do not commend themselves to the Mongols and would probably produce next to nothing. As to oppressing the Chinese, were they driven out of the country, the Khalkas would half starve and have to go unclad.

The royalty paid by the Russian Mongolor gold mining company has become of late a state revenue, and I think probably the principal one, but though it is 16½% of the gold extracted, it does not amount to very much; what with the primitive methods of operation and stealing by the miners, the production of these placer mines has fallen off considerably. In 1912 it was 72 poods or 2,592 English pounds, while last year it fell to 46 poods or 1,656 pounds. A foreigner offered them last year a million roubles a year for the exclusive right to import and sell opium in Outer Mongolia during five years; though they rather liked the idea the Russians have so far been able to dissuade them from taking such a fatal step.

The flocks and herds of the Khalkas might be increased in numbers and value, and by that means their taxable property would appreciate considerably. But to attain that end time, the stamping out of the rinderpest and the introduction of a finer breed of cattle (of which there seems to be none nearer than Europe) are all needed, and, last but not least, the education of this rather dull people to an appreciation of the value of the measures being taken would have to be brought about, an Herculean task again, but seemingly the only one which may help to develop to any extent Outer Mongolia, whose economic value, I venture to believe, will never greatly rise beyond what it is at present, as long as the Mongols are in possession, at all events.

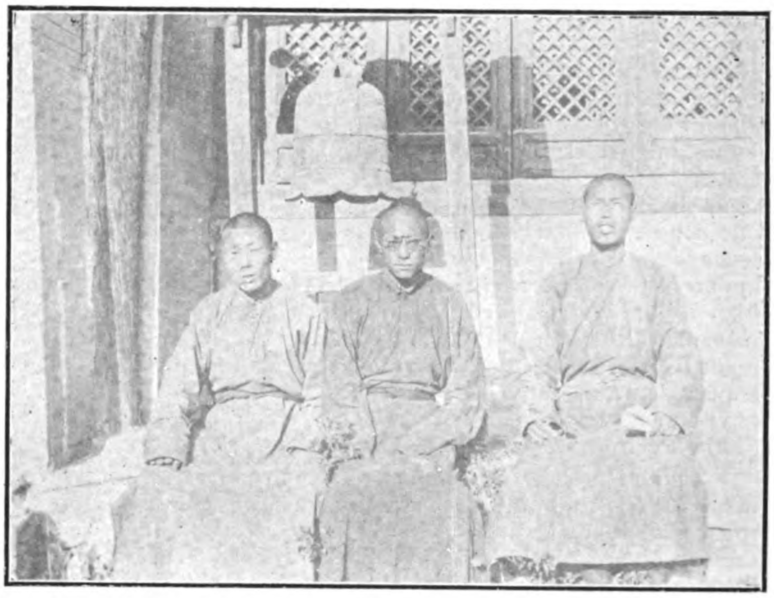
It proved an impossible task to obtain accurate, not to mention full. data as to the value of Outer Mongolia's trade with China and Russia. The trade of Urga, and most if not all of the Uliassutai regions, centers in Kiakhta. From the Returns of Trade for the year 1911, published by a committee of the Merchants' Guild of Kiakhta (this is the latest I have been able to secure, but it is not likely that 1912 and 1913 returns would disclose any very great difference in excess), I find that the total value of Mongol products imported into Russia during that year through Kiakhta was five millions of roubles, or 2½ million dollars, while the value of the goods exported to Mongolia from the same place during that period was Rbls. 1,230,000 or about 615,000 dollars. The balance in favor of Mongolia, about 1,885,000 dollars, less the value of Russian imports into Mongolia (Rbls. 800,000) represents approximately the value of the import trade of Outer Mongolia during the same period from China, exclusive of course also of that of the trade of Kobdo, which goes to Biisk, and which is certainly not over a third as valuable, say roughly two millions of roubles. That Russia can deflect the bulk of this import trade of Chinese products into Outer Mongolia to her home markets, as some Russian commercial bodies seem to believe feasible, seems under present conditions highly improbable. The trade between Russia and Outer Mongolia is now, as it has been for long years past, a practical monopoly of a few large Russian firms in Kiakhta, all of which have branch houses in China besides agencies in Urga and Uliassutai. Unmoved by patriotic considerations they seek to put on the Mongol markets the goods most favored there, and as these happen to be Chinese products they import them from China *via* Kalgan but under the Russian flag, and act simply as consignee or brokers for Chinese houses, thereby reaping a good profit at a minimum outlay of money.

At the present one of these Russian firms controls absolutely navigation on the Selenga River by which the great bulk of the trade of Mongolia *via* Kiakhta must pass to reach the railroad at Verknie-Udinsk. Whenever a railway is built to Kiakhta this monopoly will be partly broken down and Russian products will be more readily offered to the Khalkas, but even at equal prices it is unlikely that they would easily displace the better known and long-used Chinese articles. The importance of at least controlling the tea trade with Outer Mongolia, where tea is not only an indispensable article in the simple diet of the people, but an actual currency, is well known to the Russians, and so they have endeavored to divert it, at least from the direct land routes *via* Kalgan and Kuei-hua-cheng to the indirect route *via* the Yangtze river to Vladivostock, Verknie-Udinsk and Kiakhta. This they appear to have done to a certain extent, but at a very considerable cost to the Russian government, which has been obliged to reduce the cost of transportation of tea over the Chinese Eastern Railway to a nominal sum. How long the government will be willing to grant such rebates when normal conditions have been re-established in Mongolia and caravan trade is once more active, remains to be seen, but this experiment shows how put to it the Russian government find themselves to divert Outer Mongolian trade from its natural channels. No fuller exposé of the difficulties which confront Russian economic development in Outer Mongolia, or of the measures the government have in contemplation for improving it, can be found than in the discussion which took place in the Budgetary Commission of the National Duma on November 28th, 1913. The Minister of Commerce then stated that, notwithstanding the efforts here-



Type of Mongolian Vehicles—Bullock Carts

Pilgrims on Way to Mongolian Shrine



Lamas of the Mongol-Chinese Borderland

Mongolian Cavalry Waiting to Take Part in Review Ordered by the Hutuketu

tofore made, Russian trade with Mongolia was still falling off. The organization and development of this trade was, however, a matter for private enterprise, the government could only insure favorable conditions. The small sale of Russian goods in Mongolia was due to the very small purchasing capacity of the Mongols, and to the absence of organized credit. The institution of a bank in Mongolia would encourage trade and the Ministry of Finance was ready to offer its assistance to this end. The cost of railway transportation of goods for the Mongol market had been reduced and regulations have been made for the granting of customs drawback certificates and establishing a free list. Furthermore a commercial Agency had been established at Urga, but as it had proved itself of limited usefulness its duties and means of action would be extended. (See "Novoe Vremya." 15/28 November, 1913.)

The various points mentioned by the Minister of Commerce in this discussion have been referred to in previous passages of this paper, and what appears to be the real reasons for the unsatisfactory condition of Russian trade in Outer Mongolia have been given; the firmly established preference for Chinese products and the impossibility for Russian trade (exclusive of that of Kiakhta) to compete on the local markets unless assisted by preferential freight and customs rates, are the principal obstacles.

The general conclusion I have reached is that nothing short of the expulsion of most of the present Russian firms and small traders now engaged in the Outer Mongolian trade* and the substitution of Moscow firms, the exclusion of all possible foreign competition, together with the maintenance of preferential treatment for home trade and the forcing of all Chinese imports to come by the Vladivostok-Verknie-Udinsk-Kiakhta route, can secure to Russia the economic control of Outer Mongolia. With the right for this country to concede equally favorable trade conditions to other nationalities and the practical impossibility of excluding Chinese goods from the direct route the task seems quite an impossible one.

Certain measures have quite recently been suggested in Russia by persons and organizations taking interest in the question of Outer Mongolian trade, for the betterment of economic conditions there. One urges the improvement of the roads and waterways, another, the Irkutsk Chamber of Commerce, advises the free entry into Russia of Mongolian products, the organization of a veterinary service in Mongolia to combat the rinderpest, and the establishment of Russian telegraph stations and post-offices. None of these measures, except the organization of a larger veterinary service (one already exists) would appear likely to serve, or in any way benefit, the Mongols, or extend Russian economic control over the country.

The best Russian work on Russo-Mongol trade is, according to all Russians, official as well as men of business in Siberia and Mongolia when questioned on the subject, that published in 1910 by Bogoleipov and Sobolew entitled "Otcerki Russko-Mongoliskoi torgovli," or "Outline of Russo-Mongol Trade." The conclusion reached by these writers after careful study in Mongolia and Siberia of this matter is given in Chapter XX of the work (pp. 474-490). They accept the fact of the steady falling off of Russian import trade into Mongolia and of the futility of hoping to drive out Chinese competition, even if all the measures advocated by the Russian Government, commercial organizations and individuals are carried through. They condemn the substitution of constant governmental assistance in fostering and developing this trade, while attempting at the same time to maintain the general high cost of production of Russian goods. Individual initiative and enterprise, with which the Chinese engaged in Mongol trade are well supplied, is in their opinion, the only hope for bettering the situation.

"The extension of Russo-Mongol trade shows how necessary it is for the individual as well as the nation to seek their power and strength within themselves. Russia turned to the East in the hope that her higher civilization would open a market to her industry. She could not possibly expect to find a market for that industry in the West, but in the East Russian goods have appeared in the same manner as Russian industry exists within Russia, to wit under strong escort. Within Russia industry is escorted by customs duty, by preferential tariffs, by loans and supports. In the Far East the Russian merchant was always preceded by the soldier's bayonet, by concessions, privileges, special treaties and large expenditure of Government gold. Only in Mongolia has Russia appeared on an outside market without this escort. Here she was for the first time seen advancing in a purely commercial way. Russia's right of duty free trade in Mongolia was counter-balanced by the competition of lower priced English and American goods, and by the fact that the trade has, up till now, to count with considerable difficulties of conveyance and the primitive conditions of Mongol life. The result of this trial of open competition in a foreign market has, we much regret to say, given proof that we are not yet strong enough to maintain a purely commercial position."

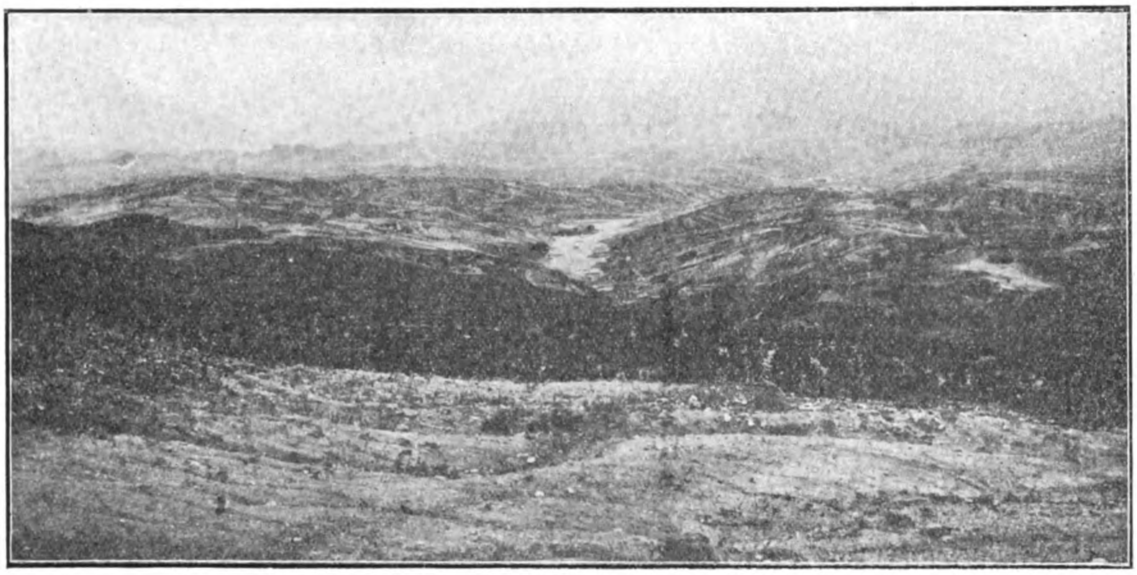
The remedies advocated by the writers are (1) the creation of a buffer state in Northern Mongolia, (2) the stopping of Chinese colonization, "a danger not only to the Mongols but to the white races," and (3) the organization of Russian trade, the principal factor of which should be the cheapening of Russian goods on the Mongol market so that they can compete with those sold by the Chinese. In urging these measures the writers seem to have lost sight of their previous contention that governmental assistance could never take the place of individual initiative, but they foreshadow correctly the policy which has since then been followed by the Russian government.

The only way out of the difficulty of maintaining an autonomous Outer Mongolia, subject to the conditions laid down in the Urga Convention and the Peking Declaration, would seem to lie in the direction of establishing a complete and hearty co-operation to that end between Russia and China for its administrative and economic development. This would include a willingness on the part of these two countries to allow the establishment of a low tariff of duties, say 5 per cent or even 3 per cent on all imports into the country, the Customs service to be, if possible, under joint foreign management. This would give a certain small revenue to the government at Urga, which, added to the sums it will probably continue to receive from gold mining, timber felling rights, and various other concessions, and the ordinary taxes in force in the country should, with economy and honesty (two very difficult things to obtain, however,) prove sufficient for their simple administrative needs, including even the maintenance of the small native cossack brigade now being organized under Russian officers, if it is not increased beyond its present force of 1,500 men. If some such arrangement is not arrived at, the alternative seems to be the financing of Outer Mongolia by Russia.

So far the assistance the Russian Government has given to the Khalkas has been mainly, if not exclusively, confined to Urga. The first step was the organization of a small force to police the country. The Urga government showed themselves disinclined to see it undertaken and opposed apathy and childish objections, and it was not without some difficulty and the promise of ample assistance to carry out the scheme that it was finally agreed to. In May or June, 1913, a small Russian military mission arrived and having established a permanent camp at a place called Hujir-burun, about five miles east of Urga, began the recruiting and instruction of a small force of cavalry, the equipment, arms, ammunition and six light mountain guns being also presented by the Russian government.

They have also opened a small hospital, equipped the "Russo-Mongol Printing Office" where a bi-monthly paper, the first of its kind, called the "Shiné toli khéméhu bitchik" or "New Mirror" is printed in Mongol, but it finds very few readers. A contract had been made with an enterprising Russian to open a service of motor busses between Urga and Kiakhta, he assuming the charge of repairing (practically making) the 170 odd miles of bad road between these two places. It seems probable that some time will elapse before this service is opened. A small school has been established

* There are said to be in Urga 1,000 Russian subjects—exclusive of course of civil officials and the Agency escort—a considerable portion of whom are, I take it, Buriat Mongols. At the Mongolor gold mines there are said to be in the working season some two to three thousand Russians.



Nearing the Great Gobi Desert of Mongolia

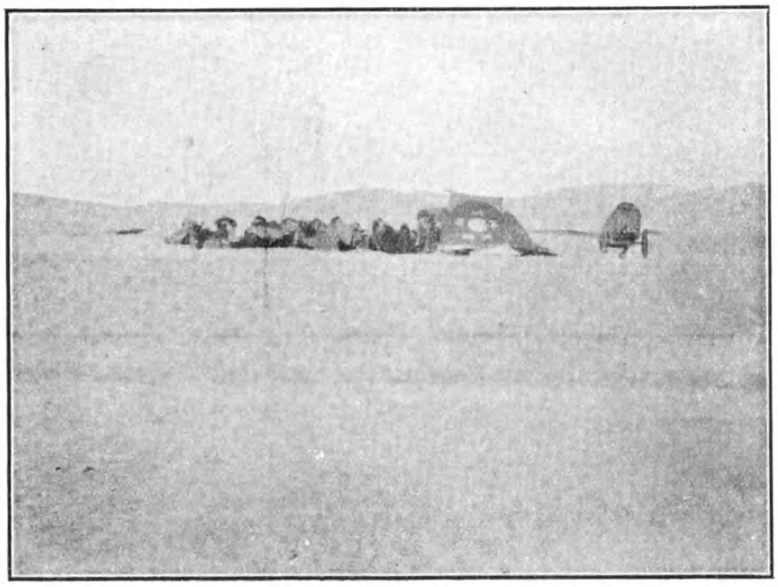
(it has not over ten pupils) in which to teach the Khalkas Russian. Furthermore, nine promising Khalka boys have been placed in schools in Irkutsk, and about the like number at Troitskosarsk, or Kiakhta.

The old Russian concession in the Mongol town of Urga being inadequate a much larger one of 270 *desiatines* has been granted the Russian government between that town and Mai-mai-cheng, including in it the Diplomatic Agency and other official buildings. Here two or three Moscow merchants have been induced to buy lots of ground, around them high palisade fences have been put, but on them no building will probably ever be placed. A diminutive police force (six cossacks of the escort of the Agency) has lately been put on duty in the old Russian concession, and an enterprising Russian trader has started a cinematograph; such were the principal signs of Russian governmental and private activity at Urga when I was there in December, 1913. Among the Khalkas their new gained liberty has not caused an awakening of any dormant energy. The Hutuketu's government have confined their activities to starting a little school in which to teach Russian, and the Ministry of War had "under consideration" the building of a prison to take the place of the horrible palisaded inclosure in which malefactors are now confined and, if reports are true, most cruelly treated. Public works of any kind (the filth in Urga is indescribable, the dead are frequently thrown by the way-side to be devoured by the herds of dogs which swarm over the whole place) will have to wait for money to come into the coffers of the state; till then, at all events, nothing can or will be done—afterwards it will probably be as before.

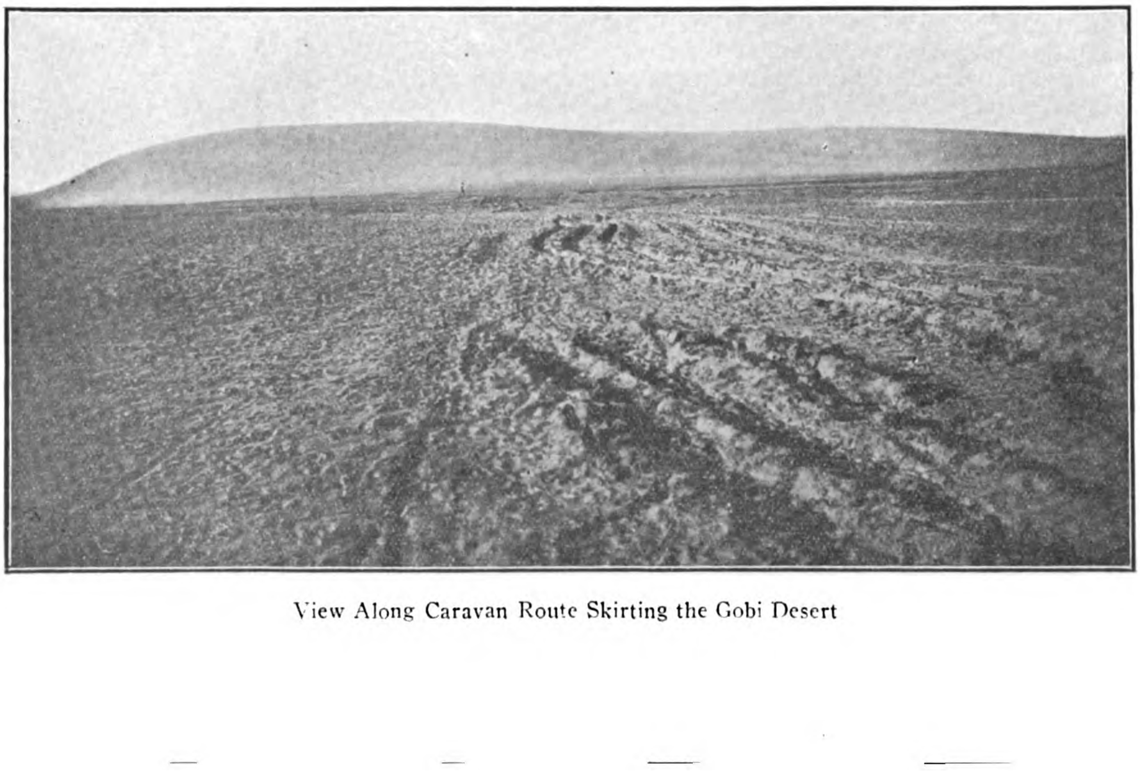
A number of serious questions confront the Khalkas, one of which, at all events, must promptly be solved. There are absolutely no fundamental laws for the organization of the new confederacy or for its administration. The question of succession to the rulership even has not been taken up. Nothing has been done to strengthen the former loose organization of the country in which Chinese authority could always be appealed to and was always forthcoming, to guide or control their views or actions.

Although, to use the language of the Urga Convention, it was "in accordance with the desire unanimously expressed by the Mongols to maintain the national and historic constitution of their country that the Jébtsum-damba Hutuketu was proclaimed Ruler of the Mongol people," nevertheless this choice does not appear to have coincided with the unanimous wish of the various princes and chiefs, many of whom hoped that a ruler of their own race and a member of their ancient nobility might found a dynasty to rule over them. Agitation in favor of this nationalist solution of the dynastic question became strong during the last year and the Sain-noyin Khan, the actual President of the Council of Ministers, was considered the strongest, noblest and most popular ruler the country could have to establish the new Mongol empire.

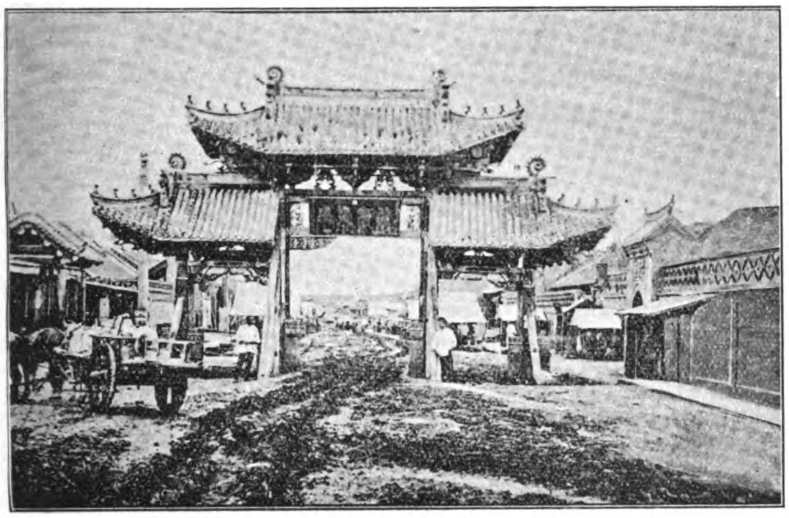
On the other hand the Hutuketu, or as he is now styled the Bogdo Khan or "Holy Prince," though a lama, is married, has sons (his brother



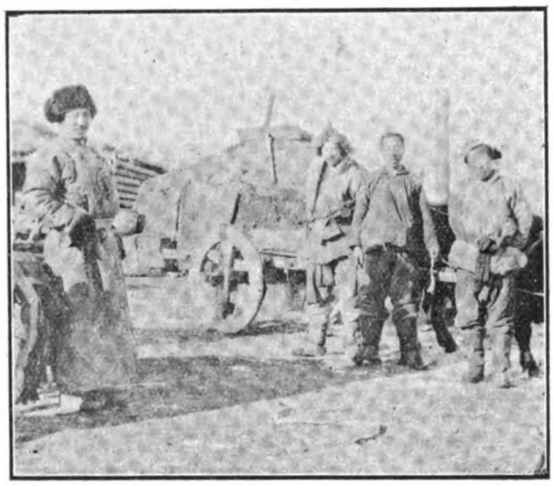
Caravan at Rest in the Desert



View Along Caravan Route Skirting the Gobi Desert



Gate of Sansing, an Important Town in Northeastern Mongolia



Chinese Colonists between Kiakhta and Urga

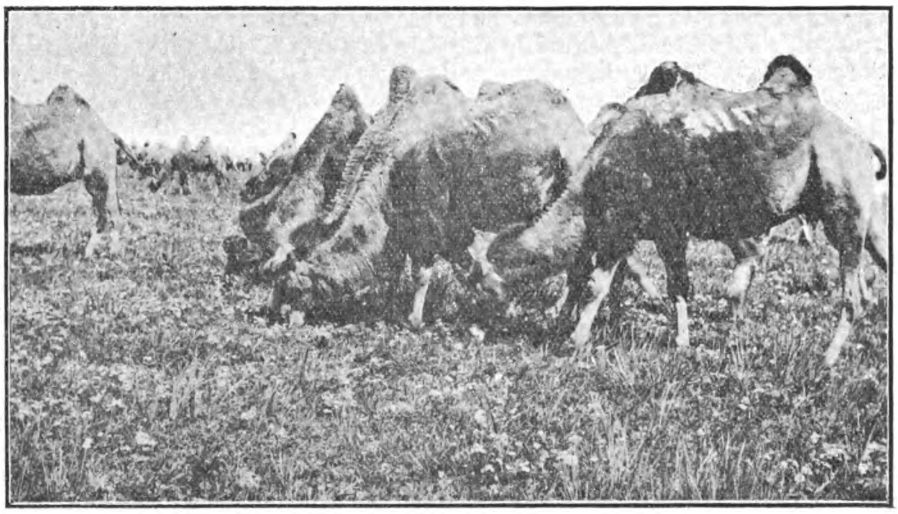
the Ta Lama is also blessed with children) and hopes to establish his dynasty. While the Russian government lends him their support for the time being, it can hardly be doubted that they would see with no particular concern the substitution of a manly, intelligent, though inexperienced Mongol prince in the place of the notoriously debauched Tibetan lama. Besides his personal unfitness there is another reason for apprehension if the Hutuketu is maintained in power, which is his well-known ambition (the first Hutuketu, as we have noted previously, had the same ambition) to create an independent lamaist church in Mongolia. Any attempt to carry it out would most likely create serious internal dissensions, for the authority of the supreme head of the Yellow Church, the Talai Lama of Tibet, is everywhere recognized in Mongolia, and it could not easily be put aside, although the severance of Outer Mongolia's relations with China may enable the Hutuketu to fill all ecclesiastical offices with his creatures, such offices being no longer, as heretofore, under the control of the government at Peking.

There are other questions, both of a political and economic nature, which must cause the well-wishers of the new state grave apprehension, but enough has been said, it is thought, to justify my belief in the wisdom of the present policy of a minimum interference on the part of the Russian government in the affairs of Outer Mongolia, so long as the cardinal principles of their defensive policy in the Far East are fully recognized by all interested powers. The strict enforcement of these principles may, some day, carry Russia much further than she desires, but until there is another general reversal of her policy in Far Eastern Asia this seems unlikely; things in Outer Mongolia will go on much as before.

As I finish writing I have received a copy of the very recently published work of M. Douglas Carruthers, entitled "Unknown Mongolia." In a most instructive chapter dealing with Mongolia, past and present, the writer, speaking of the secession and the establishment of the autonomous government, says that "taking for granted an autonomous Mongolia under the protection of Russia, we can prophesy far-reaching and fundamental changes in the lives of the people and in the future of the Mongol race. Mongolia will become a land of activity and progress instead of, as formerly, a land of stagnation and suppression. Russian merchants will flock into the country, railways will be constructed, vacant lands will be used for agricultural purposes, and waste land reclaimed. There will be facilities for trade, which will prove advantageous to the Mongols as well as the Russians.........Foreigners will work gold reefs, with the result that Chinese suzerainty and the church will lose no small amount of prestige. With this new movement and activity the old lethargy will no doubt decrease, and, we hope, eventually disappear."

This prophecy may some day in the far future be partly realized, but I can see no sign of such a consummation, and I must rather agree with Mr. Carruthers' other statement in the Introduction to his work, viz., "Who would dare to prophesy the future of the marches of Siberia and China?"

Mongol Official on Inspection Tour



Camel Herd on the Grazing Grounds of Mongolia

CHINA, RUSSIA AND MONGOLIA

China is to be congratulated upon the satisfactory termination of the Conference at Kiatchka summoned to determine the relationship of Outer Mongolia to the Republic of China and to Russia. As a result of this Conference, at which China, Russia and Outer Mongolia had representatives, a Treaty was signed at Kiatchka on June 7 which settles most of the questions which arose out of the secession of Outer Mongolia from China during the Revolution.

Outer Mongolia has always enjoyed a kind of semi-autonomy. This was guaranteed by the Manchu Dynasty, but for many years previous to the Revolution peaceful penetration by Chinese agriculturists and traders had been accompanied by a perceptible extension of China's political influence and power. The Mongols had but a primitive idea of agriculture and still less knowledge of trading, consequently they were quite unable to compete with the Chinese immigrants who arrived yearly in ever increasing numbers. Simultaneously the Chinese garrisons in Outer Mongolia were increased. These developments were watched by the Mongols with alarm and resentment, but it was not only the Mongols who regarded the Chinese pacific invasion with anxiety. Russia has always been obsessed by a fear that Siberia, now sparsely populated and offering great attractions to an industrious and frugal people such as the Chinese, would in course of time be submerged by successive waves of Chinese emigrants. Experience had shown that the Russian peasant, low as his scale of living is, has absolutely no chance in competition with the Chinese. So thoroughly has this lesson been learnt that drastic legislative measures have been taken from time to time to keep the Chinese out of that portion of Siberia lying East of Lake Baikal. Even what was regarded as the urgent military necessity for the speedy completion of the Amur Railway was not held to justify the employment of Chinese labour. It was feared by Russian statesmen that, after the Chinese had settled upon all the productive soil of Outer Mongolia, the dam interposed by the political frontier would be subjected to a strain which it could not withstand and the human flood would sweep into Siberia. It became a cardinal object of Russia's policy to preserve Outer Mongolia for the Mongols, as the latter were comparatively few in number and could not become a menace to Russian interests in Siberia. The policy of the Russians and Mongols was, therefore, identical in so far as it concerned the incursion of Chinese immigrants to Outer Mongolia.

The resentment that had hitherto been felt by the Mongols at the assumption by the Chinese of greater power than was consistent with the guarantee of autonomy, was inflamed by the policy of San-to, the last Chinese Amban to officiate in Urga. This official in 1911 vigorously promoted the immigration of Chinese; increased the Chinese garrison at Urga, and gave the Mongol chiefs plainly to understand that China's suzerainty was to be respected. So discontented did the Mongols become that, a few months before the outbreak of the Revolution in China, they sent a Mission to Petrograd to endeavour to enlist Russian support in the action they proposed to take to secure their independence. Before this Mission had completed its work the revolutionary outbreak occurred at Wuchang and the rapidity with which the movement gained ground so encouraged the Mongols that in December, 1911, they expelled the Chinese Amban and the other Chinese officials. The Chinese troops retired from Outer Mongolia, and the Mongols declared their independence. The Urga Hutukhta was proclaimed sovereign of Mongolia and a central government was formed. Barga, a portion of the Manchurian Province Heilungchiang, threw in its lot with Outer Mongolia. It will be noted that the Hutukhta was proclaimed Sovereign of Mongolia, not of Outer Mongolia, and in the Russian-Mongolian Agreement of November, 1912, the more comprehensive term is employed. But at no time did the whole of Mongolia acknowledge that sovereignty of the Hutukhta, and several of the Princes of Inner Mongolia have throughout remained loyal to China.

Great efforts were made by the Peking Government to come to some arrangement with the Hutukhta whereby the loss of Outer Mongolia to the Republic—it was at that time believed that Russia intended subsequently to annex the country—could be prevented. These efforts towards conciliation were, however, unsuccessful and the Hutukhta enlisted the aid of Russian officers to create a Mongol army. No great results were achieved. Negotiations were carried on between Russia and China during 1912, Russia seeking to secure China's recognition of the autonomy of Outer Mongolia, but, as no satisfactory conclusion was arrived at, on November 3, 1912, Russia concluded the Agreement with the Hutukhta already referred to. In this agreement Russia promised to give her aid to Mongolia to preserve the latter's independence and its rights of having its national troops and of refusing to allow Chinese troops or Chinese colonization in its territories. Russian subjects were confirmed in the privileges and rights previously enjoyed in regard to trade, travel and residence in all parts of Mongolia. In the protocol, also signed on November 3, 1912, the textual reference was to Mongolia, and not to Outer Mongolia only. Russian subjects were, in this Protocol, confirmed in the right "to import and export at all times all products and manufactures of Russia, Mongolia, China and other countries duty free, and to conduct free trade exempt from all duties and taxes."

Two months later, on January 11, 1913, a Treaty between Outer Mongolia and Tibet was signed. It is to be remarked that in this instrument the term Mongolia was used throughout. By this Treaty each country recognised that the other was an independent state, and they agreed to afford each other aid against dangers from without or within.

Notwithstanding Russia's recognition of the independence of "Mongolia" and promise of aid in the event of that independence being challenged, there was a strong anti-Russian party in Outer Mongolia. It speedily became obvious to the Mongols that Russia had no intention of aiding them to create a united Mongol state that would include Inner Mongolia. This realization caused a change of sentiment even among those who were inclined at first to entertain warm friendship for Russia. The anti-Russian sentiment was not lessened when it was announced that a Russo-Chinese Agreement had been signed on November 5, 1913, whereby, while China acknowledged the autonomy of Outer Mongolia, Russia recognized that Outer Mongolia was part of the territory of China. This Agreement dispelled forever the Pan-Mongolian dream that had inspired the original declaration of independence. In the Agreement Russia recognised that Outer Mongolia was under the suzerainty of China, and China, as already mentioned, recognised the autonomy of Outer Mongolia. China agreed not to intervene in the internal administration of Outer Mongolia; not to despatch troops thither, and to abstain from all colonization in the state. A Chinese representative could, however, reside in Urga, with the necessary staff and escort. Chinese agents could also be established in certain localities, if necessary, for the protection of the interests of Chinese subjects. On her part Russia agreed not to maintain troops, other than Consular guards, in Outer Mongolia; not to intervene in the internal administration, and to abstain from colonization. China declared her willingness to accept the good offices of Russia to establish relations with Outer Mongolia. The last article of the Agreement declared that the questions touching the interests of Russia, China and Outer Mongolia in the latter state would be the subject of future discussion. In notes exchanged by M. Krupensky, Russian Minister in Peking, and Mr. Sun Pao-chi, Chinese Minister for Foreign Affairs, the formal acknowledgment by Russia that Outer Mongolia was part of the territory of China was repeated; the arrangement that Russia, China and Outer Mongolia should take part in a future conference was confirmed, and it was declared that Outer Mongolia included the regions that had been under the jurisdiction of the Chinese Amban in Urga, the Tartar General in Uliassatai and the Chinese Amban in Kobdo. As the actual boundaries could not be defined they would be discussed at the tripartite conference to be held in the future.

This Russo-Chinese Agreement paved the way for the Kiakhta Conference which, after many vicissitudes, has just been brought to a successful conclusion, and in effect supplied the basis of the new Treaty. The first meeting of the Conference was held on September 8, 1914. China was represented by Mr. Pi Kuei-fang, ex-Governor of Heilungkiang, and Mr. Chen-lo, Minister Plenipotentiary to Mexico; Russia by Mr. Alexandre Miller, Consul General at Urga, and Outer Mongolia by Prince Fchakdourjav, Chief of Finance, and Shirnindandin, Vice-Chief of Justice. In many quarters it was feared that the Conference could not be successful as the Mongolian Government had not been a party to the Russo-Chinese Agreement, and bitterly resented the exclusion of Inner Mongolia from the autonomous state. There were certain questions in relation to the trading rights of the Powers that were expected to give trouble. On several occasions it seemed likely that the Conference would abruptly terminate without having accomplished the object for which it met; in fact the sittings were at one time suspended for a long period. That an actual deadlock was avoided was largely due to the tact and spirit of accommodation shown by the Chinese and Russian representatives.

The political status of Outer Mongolia, as already indicated, was defined in the Treaty in the terms employed in the Russo-Chinese Agreement. One of the first points taken up by the Conference was in relation to the title of the Hutukhta as head of the autonomous state. The Russian and Mongol delegates asked that his title should be Khan, meaning King, and to this the Chinese delegates consented, but the title was to be conferred by the President of the Republic of China. The question of calendars gave little difficulty, it being arranged that both the Chinese and Mongol calendars should be used side by side in dating Mongol documents. In the Russo-Chinese Agreement it had been agreed that there should be a Chinese Amban stationed at Urga, and that he should have a bodyguard. The number of soldiers to comprise this guard was fixed at 200, while that of the Russian Consul General was to be 150.

In reference to Customs duties, Russia had secured exemption, at present and in future, for Russian goods entering Mongolia, and China contended that Chinese goods should be treated in a similar manner. The Russian delegate opposed this, but eventually it was agreed that Chinese goods imported into Mongolia should be entitled to the same treatment as Mongol goods. Reciprocal treatment would be granted to Mongol goods imported into China. Chinese goods entering Mongolia from the north were to receive the same treatment as Russian goods.

Some difficulty was experienced in arriving at an agreement in regard to jurisdiction. The Chinese delegates wanted all cases between Chinese, or between Chinese and Mongols, to be tried by the Amban at Urga or his assistants. To this the Russian and Mongol representatives would not agree. It was finally agreed that cases should be tried by the defendant's court, and the law to be applied should be the law of the defendant's nation. Assessors of plaintiff's nationality would watch the cases. In regard to cases between Russians and Chinese they would be tried by a joint tribunal composed of Russians and Chinese. If Chinese were defendants the cases would be tried in Chinese courts in the presence of Russian assessors, and the judgment in each case would have to be signed by both judge and assessor. If Russians were the defendants the cases would be tried in Russian courts, but the Chinese authorities could send a representative to watch the proceedings. This representative would, however, have no voice in the judgment.

The question of the control of posts and telegraphs in Outer Mongolia was settled by handing over to the control of the autonomous Mongol Government all telegraph lines in the state, while control of the post offices, as heretofore, is to be exercised by China.

President Yuan Shih-kai has already issued an amnesty for those who were concerned in the secession of Outer Mongolia. The delimitation of the boundaries of the autonomous state, a task of considerable difficulty, will be entrusted later on to a joint Commission.

While it is too much to hope that the Mongolian Question has been definitely settled by the conclusion of the new Treaty, it will go far towards making a future settlement possible. The main point is that the status of Outer Mongolia has been settled. The fears of Russia of a Chinese peaceful invasion of Siberia are relieved, Outer Mongolia has an opportunity to develop on its own lines, and China is confirmed in the possession of a portion of her traditional heritage that it seemed might be lost to her. Appended is a translation of the Treaty:—

SINO-RUSSO-MONGOLIAN AGREEMENT

(*Translation from the French*)

The President of the Republic of China, His Imperial Majesty the Emperor of all Russias, and His Holiness the Bogdo Djembzoun Damba Khoutoukhtou Khan of Outer Mongolia, animated by a sincere desire to settle by mutual agreement various questions created by a new state of things in Outer Mongolia, have named for that purpose their Plenipotentiary Delegates, that is to say:

The President of the Republic of China, General Py-Koue-Fang and Monsieur Tcheng-Loh, Envoy Extraordinary and Minister Plenipotentiary of China to Mexico;

His Imperial Majesty the Emperor of all Russias, His Councillor of State Alexandre Miller, Diplomatic Agent and Consul-General in Mongolia; and His Holiness the Bogdo Djembzoun Damba Khoutoukhtou Khan of Outer Mongolia, Erdeni Djonan Beise Shirnin Damdin, Vice-Chief of Justice, and Touchetou Tsing Wang Tchakdourjab, Chief of Finance, who having verified their respective full powers found in good and due form, have agreed upon the following:

Article I.

Outer Mongolia recognizes the Sino-Russian Declaration and the Notes exchanged between China and Russia of the 5th day of the 11th month of the 2nd Year of the Republic of China, 23rd October, 1913.

Article II.

Outer Mongolia recognizes China's suzerainty. China and Russia recognize the autonomy of Outer Mongolia forming part of Chinese territory.

Article III.

Autonomous Mongolia has no right to conclude international treaties with foreign powers respecting political and territorial questions.

As respects questions of a political and territorial nature in Outer Mongolia, the Chinese Government engages to conform to Article II of the Note exchanged between China and Russia on the 5th day of the 11th month of the 2nd Year of the Republic of China, 23rd October, 1913.

Article IV.

The title: "Bogdo Djembzoun Damba Khoutoukhtou Khan of Outer Mongolia" is conferred by the President of the Republic of China. The calendar of the Republic as well as the Mongol calendar of cyclical signs are to be used in official documents.

Article V.

China and Russia, conformably to Articles II and III of the Sino-Russian Declaration of the 5th day of the 11th month of the 2nd Year of the Republic of China, 23rd October, 1913, recognize the exclusive right of the autonomous Government of Outer Mongolia to attend to all the affairs of its internal administration and to conclude with foreign powers international treaties and agreements respecting questions of a commercial and industrial nature concerning Autonomous Mongolia.

Article VI.

Conformably to the same Article III of the Declaration, China and Russia engage not to interfere in the system of autonomous internal administration existing in Outer Mongolia.

Article VII.

The military escort of the Chinese Dignitary at Urga provided for by Article III of the above-mentioned Declaration is not to exceed two hundred men. The military escorts of his Assistants at Ouliassoutai, at Kobdo, and at Mongolian-Kiachta are not to exceed fifty men each. If, by agreement with the Autonomous Government of Outer Mongolia, Assistants of the Chinese Dignitary are appointed in other localities of Outer Mongolia, their military escorts are not to exceed fifty men each

Article VIII.

The Imperial Government of Russia is not to send more than one hundred and fifty men as consular guard for its representative at Urga. The military escorts of the Imperial consulates and vice-consulates of Russia, which have already been established or which may be established by agreement with the Autonomous Government of Outer Mongolia, in other localities of Outer Mongolia, are not to exceed fifty men each.

Article IX.

On all ceremonial or official occasions the first place of honour is due to the Chinese Dignitary. He has the right, if necessary, to present himself in private audience with His Holiness Bogdo Djembzoun Damba Khoutoukhtou Khan of Outer Mongolia. The Imperial Representative of Russia enjoys the same right of private audience.

Article X.

The Chinese Dignitary at Urga and his Assistants in the different localities of Outer Mongolia provided for by Article VII of this agreement are to exercise general control lest the acts of the Autonomous Government of Outer Mongolia and its subordinate authorities may impair the suzerain rights and the interests of China and her subjects in Autonomous Mongolia.

Article XI.

Comformably to Article IV of the Note exchanged between China and Russia on the 5th day of the 11th month of the 2nd Year ot the Republic of China (23rd October, 1915), the territory of autonomous Outer Mongolia comprises the regions which were under the jurisdiction of the Chinese Amban at Ourga, or the Tartar-General at Ouliassoutai and of the Chinese Amban at Kobdo; and connects with the boundary of China by the limits of the banners of the four aimaks of Khalkha and of the district of Kobdo, bounded by the district of Houloun-Bouire on the East, by Inner Mongolia on the South, by the Province of Sinkiang on the South-west, and by the districts of Altai on the West.

The formal delimitation between China and autonomous Mongolia is to be carried out by a special commission of delegates of China, Russia and autonomous Outer Mongolia, which shall set itself to the work of delimitation within a period of two years from the date of signature of the present Agreement.

Article XII.

It is understood that Customs duties are not to be established for goods of whatever origin they may be, imported by Chinese merchants into autonomous Outer Mongolia. Nevertheless, Chinese merchants shall pay all the taxes on internal trade which have been established in autonomous Outer Mongolia and which may be established therein in the future, payable by the Mongols of autonomous Outer Mongolia. Similarly the merchants of autonomous Outer Mongolia, when importing any kind of goods of local production into "Inner China," shall pay all the taxes on trade which have been established in "Inner China" and which may be established therein in the future, payable by Chinese merchants. Goods of foreign origin imported from autonomous Outer Mongolia into "Inner China" shall be subject to the customs duties stipulated in the Regulations for land trade of the 7th year of the Reign of Kouang-Hsu (1881).

Article XIII.

Civil and criminal actions arising between Chinese subjects residing in Autonomous Outer Mongolia are to be examined and adjudicated by the Chinese Dignitary at Urga and by his Assistants in the other localities of Autonomous Outer Mongolia.

Article XIV.

Civil and criminal actions arising between Mongols of Autonomous Outer Mongolia and Chinese subjects residing therein are to be examined and adjudicated conjointly by the Chinese Dignitary at Urga and his Assistants in the other localities of Autonomous Outer Mongolia, or their delegates, and the Mongolian Authorities. If the defendant or accused is a Chinese subject and the claimant or the complainant is a Mongol of Autonomous Outer Mongolia, the joint examination and decision of the case are to be held at the Chinese Dignitary's place at Niga and at that of his Assistants in the other localities of Autonomous Outer Mongolia; if the defendant or the accused is a Mongol of Autonomous Outer Mongolia and the claimant or the complainant is a Chinese subject, the case is to be examined and decided in the same manner in the Mongolian yamen. The guilty are to be punished according to their own laws. The interested parties are free to arrange their disputes amicably by means of arbitrators chosen by themselves.

Article XV.

Civil and criminal actions arising between Mongols of Autonomous Outer Mongolia and Russian subjects residing therein are to be examined and decided comformably to the stipulations of Article XVI of the Russo-Mongolian Commercial Protocol of 21st October, 1912.

Article XVI.

All civil and criminal actions arising between Chinese and Russian subjects in Autonomous Outer Mongolia are to be examined and decided in the following manner: in an action wherein the claimant or the complainant is a Russian subject and the defendant or the accused is a Chinese subject, the Russian Consul personally or through his delegate participates in the judicial trial, enjoying the same rights as the Chinese Dignitary at Urga or his delegate or his Assistants in the other localities of Autonomous Outer Mongolia. The Russian Consul or his delegate proceeds to the hearing of the claimant and the Russian witnesses in the court in session, and interrogates the defendant and the Chinese witnesses through the medium of the Chinese Dignitary at Urga or his delegate or of his Assistants in the other localities of Autonomous Outer Mongolia; the Russian Consul or his delegate examines the evidence presented, demands security for "revindication" and has recourse to the opinion of experts, if he considers such expert opinion necessary for the elucidation of the rights of the parties, etc; he takes part in deciding and in the drafting of the judgment, which he signs with the Chinese Dignitary at Urga or his delegate or his Assistants in the other localities of Autonomous Outer Mongolia. The execution of the judgment constitutes a duty of the Chinese authorities.

The Chinese Dignitary at Urga and his Assistants in the other localities of Autonomous Outer Mongolia may likewise personally or through their delegates be present at the hearing of an action in the Consulates of Russia wherein the defendant or the accused is a Russian subject and the claimant or the complainant is a Chinese subject. The execution of the judgment constitutes a duty of the Russian authorities.

Article XVII.

Since a section of the Kiachta-Urga-Kalgan telegraph line lies in the territory of Autonomous Outer Mongolia, it is agreed that the said section of the said telegraph line constitutes the complete property of the Autonomous Government of Outer Mongolia. The details respecting the establishment on the borders of that country and Inner Mongolia of a station to be administered by Chinese and Mongolian employees for the transmission of telegrams, as well as the questions of the tariff for telegrams transmitted and of the apportionment of the receipts, etc., are to be examined and settled by a special commission of technical delegates of China, Russia and Autonomous Outer Mongolia.

Article XVIII.

The Chinese postal institutions at Urga and Mongolian Kiachta remain in force on the old basis.

Article XIX.

The Autonomous Government of Outer Mongolia will place at the disposal of the Chinese Dignitary at Urga and of his Assistants at Ouliassoutai, Kobdo and Mongolian-Kiachta as well as of their staff, the necessary houses, which are to constitute the complete property of the Government of the Republic of China. Similarly, necessary grounds in the vicinity of the residences of the said staff are to be granted for their escorts.

Article XX.

The Chinese Dignitary at Urga and his Assistants in the other localities of Autonomous Outer Mongolia and also their staff are to enjoy the right to use the courier stations of the Autonomous Mongolian Government comformably to the stipulations of Article XI of the Russo-Mongolian Protocol of 21st October, 1912.

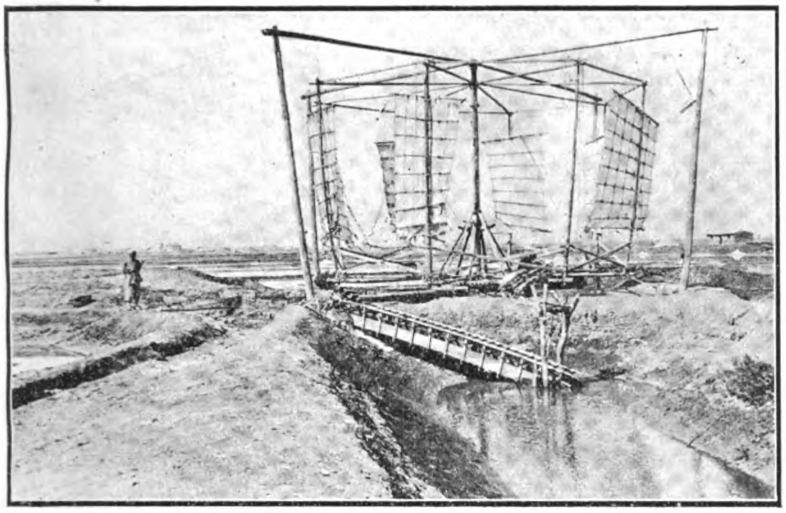
Article XXI.

The stipulations of the Sino-Russian declaration and the Notes exchanged between China and Russia of the 5th day of the 11th month of the 2nd Year of the Republic of China, 23rd October, 1913, as well as those of the Russo-Mongolian Commercial Protocol of the 21st October, 1912, remain in full force.

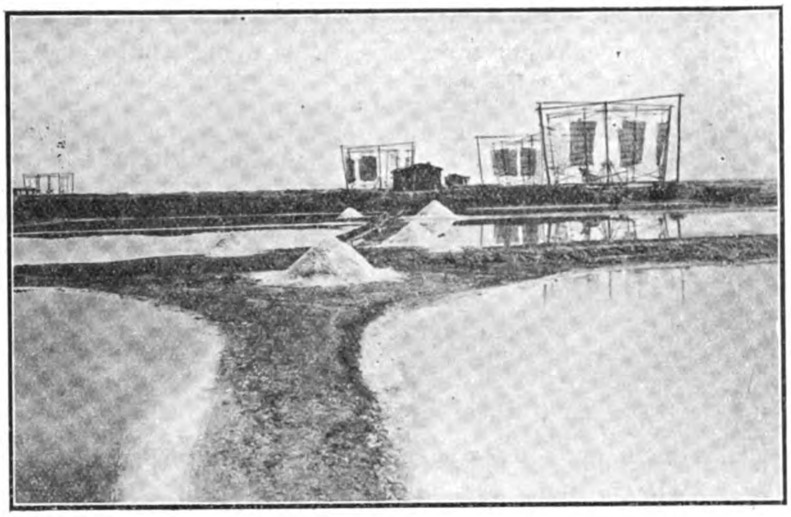
Article XXII.

The present Agreement drawn up in triplicate in Chinese, Russian, Mongolian and French languages, comes into force from the day of its signature. Of the four texts which have been duly compared and found to agree, the French text shall be authoritative in the interpretation of the Present Agreement.

Done at Kiachta the 7th day of the Sixth Month of the Fourth Year of the Republic of China, corresponding to the Twenty-Fifth of May, Seventh of June, One Thousand Nine-hundred Fifteen.



Wind Sail Brine Elevator



Secondary or Crystallizing Pond

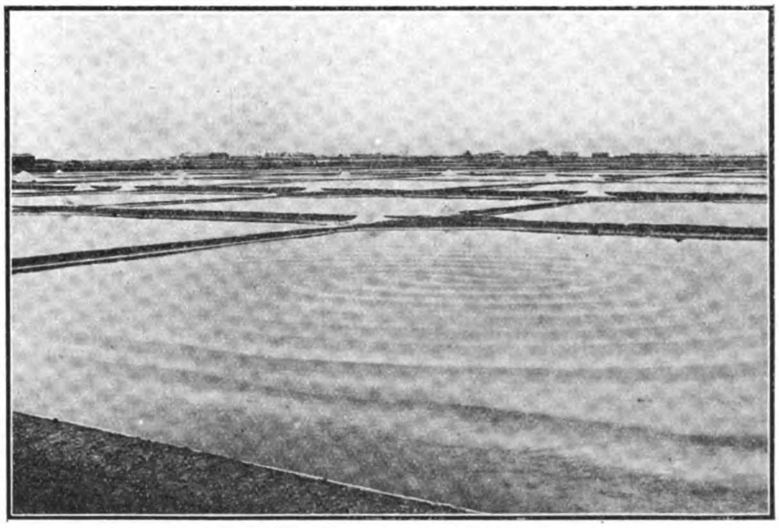
NOTES ON SEA-SALT MANUFACTURE IN NORTH CHINA

(*Communicated by Courtesy of the Chinese Salt Co., Ltd., Peking*)

The following are: (*a.*) Notes made from personal observation and from information supplied at the T'ang-ku salt pans on the Government Railway south of Tientsin and opposite the Taku forts. They illustrate a typical method of salt-production in the Ch'ang-lu area, second only in importance to that of Newchwang (Sheng-ching) in Manchuria. (*b.*) Notes made by Sir Alex. Hosie on salt manufacture in the Newchwang district.

T'ang-ku comes under the sub-district of Ning-ho, one of the ten divisions of the Ch'ang-lu area. The salt of the Ch'ang-lu and Newchwang areas is produced solely by sun-evaporation of brine in shallow ponds along the sea-coast. The salt thus produced is generally considered by the Chinese to be of the best quality, and the greater part is consumed in the provinces of Chihli and Honan. The district is divided up into a large number of small properties, each having an area of approximately 100 acres. As a rule, each property is worked by a Chinese company or partnership.

Conclusions.—North China sea-salt is obtained by sun-evaporation of sea-brine, followed by open-air crystallisation of the concentrated liquor in special ponds. As against a mechanical process, the absence of fuel-cost in this process far more than counterbalances its extra rent-cost, so that the over-all production cost is less than a half of that obtainable by any process in which pan-evaporation with coal is used. This sun-evaporated salt is produced from sea-water at about 3s 6½d per ton. The product is remarkably free from impurity.



Salt in Process of Crystallization

The disadvantages of this sun-evaporation process are:—(1.) The salt inevitably contains mechanical impurities. (2.) Production is spread over a very considerable area. This entails costly supervision for prevention of smuggling. (3.) Only one quality of salt is produced.

It is probable that the advantages, chiefly aesthetic, obtained by the utilisation of any mechanical process for evaporating sea-salt, are in China not such as to counterbalance the lower cost of the existing process of manufacture.

In North China the obtaining of large quantities of approximately saturated brine is, on account of adverse atmospheric conditions, impossible for five months in the year. The cost of production by any mechanical process would, therefore, be nearly double the average cost obtained with a plant running continuously, that is to say, the cost of production by the Hodgkinson process would, in North China, probably be increased to at least three times that of the existing process, even were a Hodgkinson plant used as a crystallising accessory only to the present process.

The writer is, therefore, strongly of opinion that it is absolutely useless to endeavour to obtain the adoption of the Hodgkinson process for sea-salt manufacture in either the Ch'ang-lu or Newchwang districts.

This report has, of course, no reference to the additional districts mentioned in App. 1.

Method of Manufacture.—Each property has a canal, often several miles in length, connecting it with the sea. About four-fifths of the land is divided into primary evaporating ponds of, roughly, 100 yards square, and the remaining one-fifth into secondary evaporating ponds of, roughly, 30 yards area.

Primary Ponds.—The sea-water is pumped by wooden elevators worked by circular horizontal-sail windmills (of which there are usually two or three on each property) to a level of about 4 ft. above the canal, and run into the primary ponds, to a depth of about 6 inches. These ponds are interconnected by small canals. When the brine has become concentrated to sufficient strength it is run into the secondary or crystallising ponds, whose level is set a foot or so below that of the others. The density of the brine is tested by means of seeds of the lotus. When the concentration is such that these float in the solution it is considered strong enough for the secondary or crystallising stage.

Secondary Ponds.—In addition to being smaller in area, these differ from the primary ponds in being of less depth, and in having their clay bottoms carefully rolled as hard as possible at the beginning of the season.

When a sufficiently thick deposit has been formed at the bottom of any pond, a workman, starting at the centre, scrapes the bottom, working outwards spirally. He finishes at a corner of the pond where he heaps up the coarsely crystalline product in order to allow it to drain. At the edges of the pond there is formed a small deposit of finely crystalline bitter salt, called "hsiao," which is raked up to the sides of the ponds and rejected.

When drained and dry the salt is collected in one large heap near the canal, and is then ready for transfer to the Government depot in boats, and for the market.

Conditions of Manufacture.—These ponds turn out salt in the five months of March, April, May, June and September, only. Through July and August the shade temperatures in the district often average between 95-100° Fahr. (see App. 2), but there is a heavy rainfall, and the atmosphere is near water saturation point. Through these two causes, which result in dilution of the concentrated brine, and a retarding of evaporation, it is found impossible to obtain crystallisation of the salt. It appears likely that the serious dilution of the brine which must take place during the heavy rains, which sometimes amount to several inches in a few hours, must be the chief disturbing factor, and it would appear advisable to have some means by which in any mechanical evaporating process in the tropics the open pans may be temporarily protected from rain.

In September, on account of the atmospheric moisture and decreasing strength of the sun's rays, the deposition of salt does not begin until about noon.

From October to the end of February the sun's rays are not strong enough to assist evaporation. The rainfall is very slight, but the cold is intense, and even the open sea in the neighbourhood becomes frozen. Though no crystallisation is obtained, there is a steady concentration of the brine, both in the canals and in the ponds.

March, April, and May are extremely dry throughout North China, and it is during these months that the great bulk of the salt is manufactured. Evaporation is then so rapid that the men are kept at work both day and night. The beds of the crystallising tanks are beaten and rolled to a slightly conical shape with a slope towards the edges. This is said to hasten crystallisation. The beating of the beds prevents contamination of the salt with the earth from the bottom of the bed, and, further, prevents the brine from sinking into the substratum, a serious source of loss if tamping is imperfectly carried out.

During the last stages of crystallisation the brine solution is kept in motion with wooden rakes. As crystallisation proceeds the salt is raked into a conical heap, and is allowed to drain. The salt so produced is often of a pure white colour, and remarkably free from mechanical impurities.

When dry it is transported by coolies to boats, in which it is carried to the Government depot near T'ang-ku station.

Output. Government Supervision and Marketing.—The Government depot is surrounded by a barrier, whose entrances are guarded by armed sentries. There are 46 salt properties in the T'ang-ku district. To each property is allotted an area within the depot upon which its salt is to be heaped. These heaps amount in September to, roughly, five to nine thousand bagsfull of salt (400 catties of salt to each bag). The total production from these properties was stated to amount annually to about 250,000 bags, or, roughly, 60,000 tons.

The salt prices for each year are fixed beforehand by the foremen of the property, in consultation with the salt merchants. After the price has been arranged the salt merchants apply to the Government for passes authorising them to sell fixed quantities of salt. Upon issue of these licenses the merchants are supposed to pay the amount of salt tax due upon the amount licensed. Upon showing his certificate at the salt depot, and satisfying the demands of the seller, the merchant is able to withdraw his salt from the seller's heap. It is put in bags alongside the heap, weighed, stamped with the salt official's seal, and loaded into trucks for transport to those districts in which its sale is authorised. A photograph shows salt packed in matting packages and loaded upon trucks. The use of matting for packages is now prohibited, sacks only being used in this district.

Weak Points in the Method of Production.—The weak points in the existing process appear to be:—(1) That production ceases entirely through five months of the year, because the fine adjustment of conditions required for the crystallisation stage are not obtainable. (2) The cost of rent and canal repairs, often constituting two-thirds of the cost of production, runs throughout the year, and has to be paid for out of production in five months only. (3) Production is distributed over a vast area, connected both inland and to the sea with easy means of transport. Smuggling can therefore be carried on without very great difficulty, and the cost of guarding against this source of loss of revenue is far greater than it would be were the concentrated brine brought to a small area for final crystallisation.

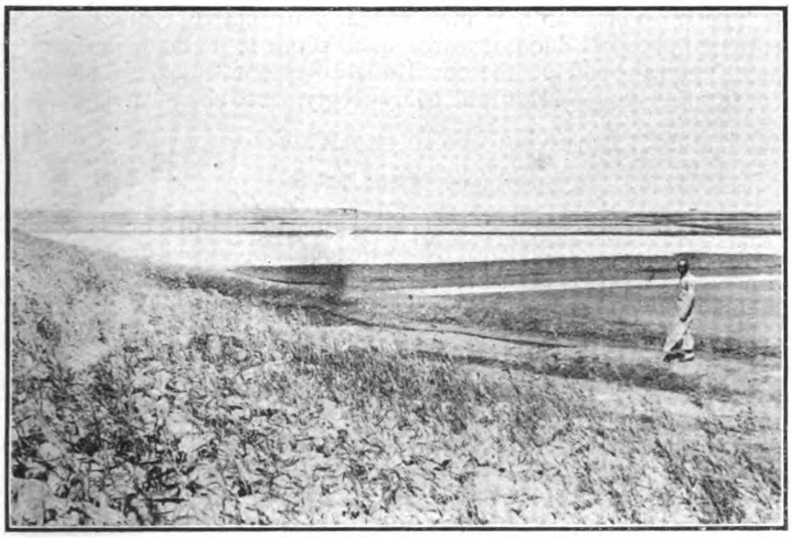
Cost of Production.—The uniform price fixed for 1913 has been 40 Kunfa Taels per Ying of one hundred 400 catty bags of salt, having a theoretical content of 360 catties only, i.e., the sellers are paid for 360 catties only, a 11.5% wastage allowance being made by the producer. The purchase price is paid on 360 catty content; excise-duty, however, is paid on the full weight of 400 catties of salt. The Kunfa Tael is exchanged at fixed price of 1,800 coppers, of which about 130 are normal exchange for the Mexican dollar, which is the basis of foreign monetary dealings in China. The price of 40 Taels per 400 x 100 catties therefore works out at 40 x 1,800 over 400 x 100, i.e., 18 coppers per catty, or 18 divided by 130, i.e., .14 dollar cents per catty. During the last five months the Kunfa Tael has varied between 3s 1d and 2s 8d. A value of 2s 10d may be taken as safe and accurate enough for our purposes. One Ying of salt weighs 23.89 tons, which is considered by the producers to cost approximately 30 Taels. Sir Richard Dane informs the writer that in the Newchwang district this year, on account of the dryness of the season, the cost of production has been lower even than this. The cost of production is therefore 30 x 2s 10d for 23.89 tons or 85/23.89, approximately 3s 6½d per ton during a period of high exchange, and as much as 25% less during a period of low exchange.

The price of 40 Taels per Ying is considered by the manufacturers to be distinctly good, on account of their profit of 10-15 Taels obtainable on the manufacture. Prices of salt have varied greatly in the district. About 50 years ago the price was as low as 8 Taels per Ying, and during the Boxer period, in 1900, it rose to 80 and 100 Taels per Ying. The average in recent years has been from 35 to 40 Taels.

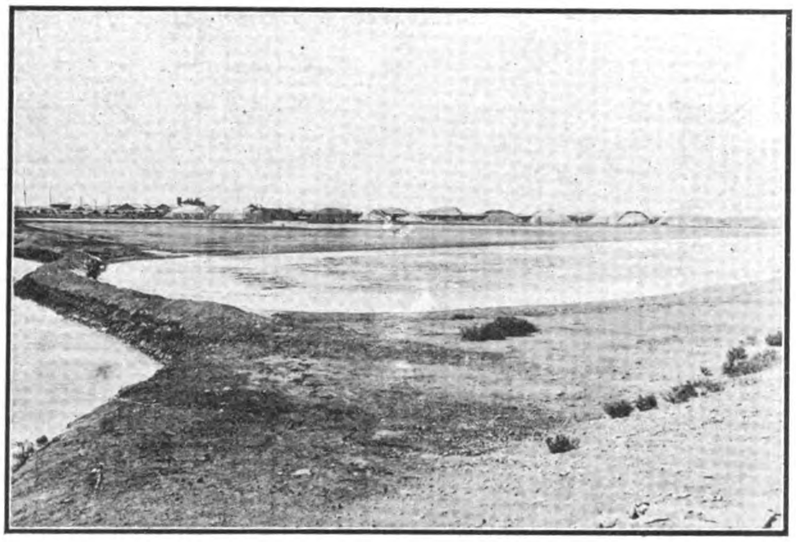
The following were given as production-costs for a property producing 4,000 bags, or 40 Ying, annually of salt. The figures have been checked on the spot, and are probably approximately correct:—

	Taels	
Rent	300	
Labour	140	
Transport	120	
Canal Repairs	300	
Pumping	50	
Tools	45	
Total Tls.	955	
Profit available	645	= 16.1 Taels per Ying
Selling Price ......Tls.	1,600	= 40 " " "

In view of the fact that the Hodgkinson process claims to produce salt at a little under four shillings per ton from fairly concentrated brine, it is obviously quite impossible for it to compete throughout with the sun-evaporation process, which has an over-all cost of, say, 3s 6½d per ton for treating a solution of more than four times as much water-content. Seeing, however, that the Chinese process is carried out in two operations—the preliminary concentration and final crystallisation—it would appear desirable to discover whether the European method of final crystallisation is capable of replacing the Chinese method, and whether such substitution would render production more expensive, and, if so, whether the greater expense is likely to be counterbalanced by advantages:



Primary Ponds



Primary Ponds with Government Depot

(1) In increased productiveness of a given area. (2) In purity of the product. (3) In prevention of smuggling. (4) In ease of collection of revenue.

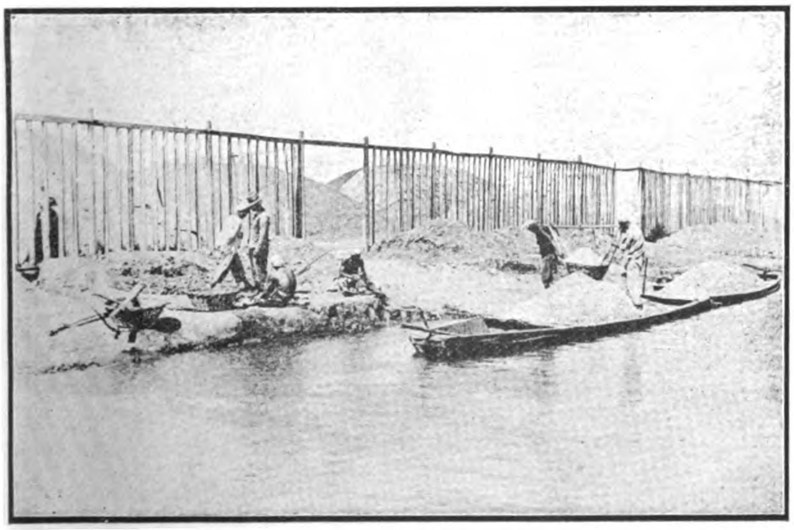
The annual production of the above property is about 40 Ying, or 40×23.81=952 tons for five months. It is obvious that it would be uneconomical to install a Hodgkinson plant, whose normal production is 17,000 tons per 5 months, for a property of smaller than, say, 17 times the size of this. Assuming, however, that an amalgamation of properties is possible, in view of the fact that a Hodgkinson plant is exceedingly compact, there will be an increase in area for primary evaporation of about one-fifth—the area previously occupied by the crystallising ponds—and a consequent economy in rent of about one-fifth. On the above property this would amount, at most, to about 60 Taels on an output of 23.81×40, or 952 tons, or say 6.3 Tael cents per ton. Such a property would of necessity have its crystallising centre as near as possible to the Government depot, so that it should be possible to economise on transport as well as labour—much of which is normally engaged in carrying salt from the ponds to the boats. It is possible that economy to the extent of, say, $120 is obtainable by this process, i.e. 12.6 Tael cents per ton. The items of canal repairs, pumps and tools would, in all probability, remain at the same level. The Hodgkinson process can, therefore, economise on cost if worked with the existing process on condition that the final crystallisation by it costs something less than 19 Tael cents or, say, 2d per ton, a condition which is manifestly impossible of attainment.

Further, the cold of winter, freezing all brine at normal sea-concentration, and the excessive rains of summer, would be likely to cause the Hodgkinson plant to be idle for as long a period as the ponds are inactive at present. The cost of evaporation would, therefore, on account of amortisation and supervision charges rise to about 4/- per ton. The cost of coal per ton would of course remain stationary, and bring the total cost to, say, 5s per ton. Any mechanical process therefore must add very nearly 5s (less 2d) per ton to the existing cost per ton. This is obviously due to the fact that the only costs in the existing preliminary process are pumping and rent, the water being evaporated almost free of cost.

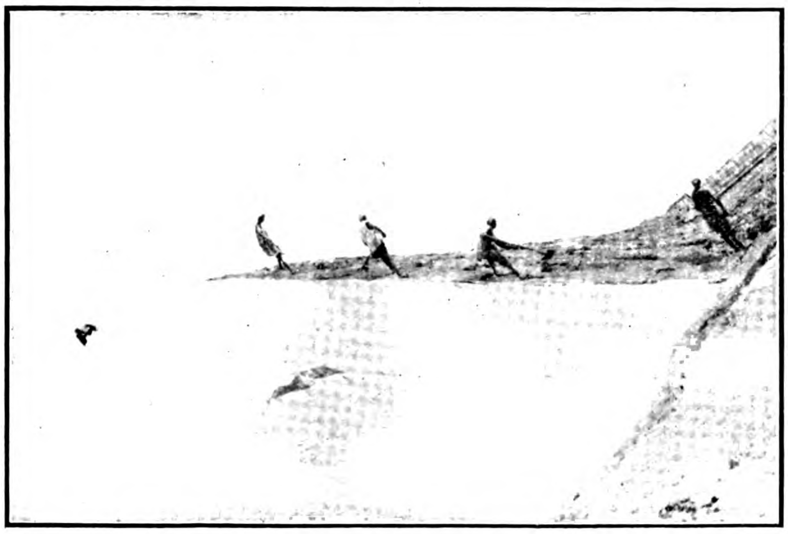
In the existing Chinese process there is no cost for coal, depreciation, sinking-fund, rates, and taxes, etc., and the cost of supervision is infinitesimal, so that it may be taken for granted that no mechanical process can improve matters in the least, as regards cost of production. The existing process takes sea-water, concentrates it to one-fifth strength and crystallises out the salt at a much cheaper rate than a mechanical process can simply crystallise out the salt.

As against the advantages of concentrating production into a small area and producing a cleaner product by such a process as Hodgkinson, it would doubtless be urged that it would be quite possible to have the concentrated brine from a large area run into a comparatively small Government-supervised crystallising area at present, and that if increased purity is desired it would be easy to have cement or even iron bottoms to the existing crystallising ponds. As regards the fineness—table, fishery, etc.—of the salt produced, it may be pointed out that to the Chinese nation as a whole, in its present state of refinement and cheapness of labour, it is practically immaterial whether salt be supplied as rock-salt or table-salt.

Chinese Salt Consumption.—Practically the whole of the salt consumed in places accessible by railways in China is



Salt Entering the Depot



Heaping the Salt

Weighing and Bagging

sun-evaporated salt, except in Yunnan where the importation of salt, even Chinese, by railway is prohibited. It is impossible to obtain statistics as to the relative quantities of sea, "boiled" and "board" salt consumed in China, but in view of the fact that sea-salt has no access to Yunnan and Szechuen, which together have a population of, say, 50 million—one-eighth of that of China—the sea-salt consumed cannot be more than, say, 85% of the whole.

Weighing, Bagging and Sealing

There can be no doubt that, in view of the fact that railways are being built from the sea inland, and are not facilitating transport from the "boiled" salt district, the area consuming sea-salt is, and is likely to be, on the increase.

It is stated by Chinese in Chihli that Chinese throughout China prefer salt prepared from brine by sun-evaporation. This salt is usually cleaner before contamination or adulteration than any other, is very salt in taste, and is free from bitterness. So high is this reputation that in South Yunnan, two hundred miles from the sea, smuggled sea-salt is preferred to the clean well-salt of Western Yunnan, more on account of its superior saltness and preserving properties than on account of its greater cheapness. On account of the well-known superiority and ready saleability, salt merchants through those parts of China into which sea-salt can be imported, prefer to deal in this kind of salt.

Next in quality, according to Chinese estimation, is the salt made by "boiling" or evaporation in iron pans over fires.

Third in estimation comes the salt prepared by evaporating brine on boards.

The following is therefore the order of preference:—(1.) Sea-salt, (2.) Boiled-salt, (3.) Board-evaporated salt.

Refined salt Consumption.—The Chinese merchants in Tientsin refine a small quantity of sea-salt by re-solution followed by careful filtration. This salt is for foreign consumption, and is sold to foreign merchants by the salt-guild at a price of 18 cents per catty at Tientsin. The consumption of this "refined" salt is quite inconsiderable. It is probable that were the price of this refined salt to be brought to a figure approximating that of the common quality, by manufacturing by machinery and on a much larger scale, a considerable period would elapse before Chinese and European demand, together, for the improved brand, would enable this plant for the manufacture of refined salt to be kept continuously in operation by the demand.

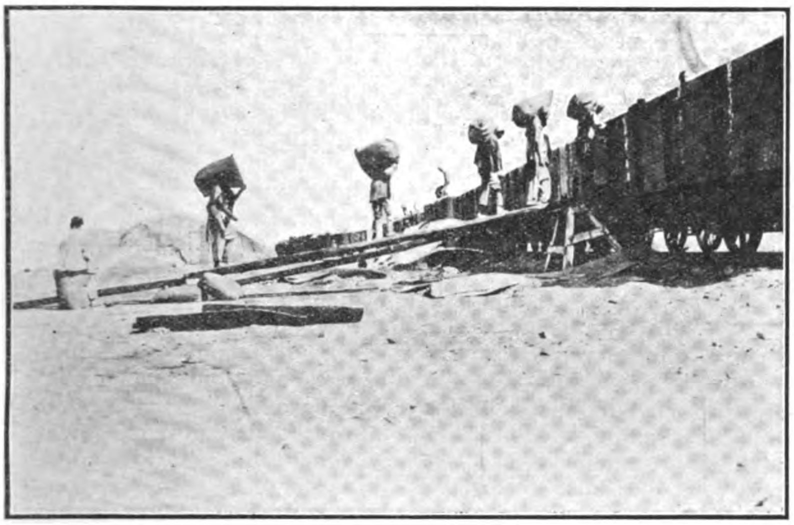
The existence of the small quantity of native refined salt mentioned above is due not to the small profit to be made in open market upon the sale of the small quantities consumed, so much as to the fact that foreign salt is, by treaty, contraband in China.

Salt Manufacture in the Newchwang District of Manchuria.*

In the low-lying lands of the Liao-tung Peninsula, and more especially between the port of Newchwang and the city of Kai-p'ing Hsien, where a number of creeks penetrate inland from the sea, much of the ground is given up to the manufacture of salt by sun evaporation. Previous to visiting these salt-fields I was under the impression that sea-water was simply run on to the fields and allowed to stand there until the water dried up and left a deposit of salt; but I found on personal examination that the process is much more elaborate and is carried on not without a certain amount of rude science. Nearest to the creek or open ditch leading from the creek—these ditches ramify over the salt-fields—are five large square or oblong plots of land (Shui Chuan) sunk in the soil, each carefully dyked and capable of containing water two to three feet deep. Small openings, which can readily be closed by pieces of wood, allow the water to run from the first plot or tank into which the sea-water is baled from the creek or ditch to the second, third, fourth and fifth tanks. Next to these tanks are eight similar but smaller tanks (Lu Tang), and beyond six and sometimes eight similar but smaller tanks (Yen Chih), in the last of which the salt ultimately crystallises. The three sets of tanks all communicate with each other by means of small openings in the dykes, which can be closed at will. In the first two sets of tanks the beds or floors are flat, but in the last set, which are shallower, they rise gradually from edge to centre. In the end of the autumn the beds of the last set of tanks (Yen Chih) are beaten hard by wooden mallets—the soil is clay—and sea-water is run into them through the other sets of tanks. That is allowed to remain frozen over winter, and in spring the beds of the Shui Chuan and Lu Tang are levelled and beaten hard. When the water thaws in the Yen Chih it is carried back by a small drain to, and stored in, the third and

*Sir Alexander Hosie:, 'Manchuria." 1901. Methuen.

Sewing up the Bags



Loading into Trucks

Trainload of Salt

fourth of the Lu Tang or middle set of tanks. This water is now called the Lao lu or old brine, and the workmen contend that crystallisation is hastened by the sea-water passing through it from the Shui Chuan on its way to the Yan Chih. When the old brine is removed from the latter the beds are again hardened. Everything is now in order for the manufacture of salt. The Shui Chuan are ready for the reception of sea-water from the creek, the third and fourth tanks of the Lu Tang are full of Lao lu (old brine), the other six being empty, and the Yen Chih are also empty. When the Shui Chuan are full the water at once passes on to the Lu Tang, mingles with the Lao lu, and remains there eight days. Science now steps in. The headman has to say when the time has arrived to allow the water to pass through the last Lu Tang to the final set of tanks (Yen Chih), i.e. to test its specific gravity. This he does by using the egg-shaped seeds of the lotus. It was only after an hour's cross-questioning—the Chinese mind works in a series of curves—that a headman produced from a small bag hung round his neck by a cord under his clothes, four lotus seeds of different colours and weights. They represented, according to him, thirty, fifty, eighty and a hundred per cent, and when the heaviest, that is the last, floated on the surface of the water, the time had come to allow the water to escape from the Lu Tang into the final set of evaporation tanks (Yen Chih). Not all, however, for as Lao lu (old brine) must be retained in the Lu Tang for the next supply of sea-water, only one half is permitted to flow into the Yen Chih. Much now depends upon the weather. In the hottest and brightest days of summer salt crystallises in the final tank in forty-eight hours; but three to four days are usually required in spring and autumn. Ten to fourteen days, therefore, may be reckoned as the time necessary to complete the manufacture from the time the sea-water enters the Shui Chuan till the salt falls in large crystals on the bed of the final tank, whence it is scooped up by means of a wooden rake and spread out to dry. When it has been collected the water from the next tank takes its place, and so the process goes on. The crystals are large—some clear as glass, others white and opaque, while others again are dingy and muddy. The purity of the salt depends, in a great measure, on the hardness of the bed in the final tank. If it is at all soft, mud is scooped up with and discolours the salt. On an average five piculs (a picul of salt weighs about 600 catties or 800 lbs.) are collected from the final tank at one time, and the average production of a set of tanks for seven months' working amounts to 300 piculs (of 800 lbs. each) or 107⅛ tons. Much however depends upon the season: dull or rainy weather retards the evaporation. The price of salt at the works is from 12 to 13 tiao (roughly speaking, 6 tiao are equal to 1 Mexican dollar) per picul (800 lb.) and the tax per picul of the same quantity payable by the buyer at the Salt Collectorate Office near at hand amounts to 7½ tiao, or more than 50 per cent ad valorem. The cartage per picul from the place of production to the port of Newchwang is 4 tiao, bringing the price per picul at the time of shipment for the interior of Manchuria up to 24 or 25 tiao, or about 4 dollars. To avoid this cartage, boats which have come down from the interior with beans frequently ascend the creeks, load a little salt and return to the port to fill up with return cargo. The shallowness of the creeks prevents their taking full cargoes at the works.

Appendix 1.

Localities of Salt-Production in China.

1. *Sun-dried Salt:—*
   - A. From sea-brine (coastal)
     1. Sheng-ching, or Newchwang, district of Manchuria.
     2. Chang-lu district (Chihli province), as in this report.
     3. Shantung.
     4. Huai-pei (Northern Huai, in Kiangsu).
     5. Fukien and Kuangtung.
   - B. From well or lake salt (inland)
     6. Shansi
        Shensi
        Mongolia
        Sinkiang
2. *"Boiled" salt (inland)*
   1. Szechuen
   2. Yunnan
3. *"Board evaporated" or "boiled" (coastal)*
   1. Huai-nan (South Huai in Kiangsu)
   2. Chekiang

Appendix 2.

Atmospheric Conditions at Tientsin.

Total Rain and Snow Fall from the year 1908 to 1912.

	1908 Inches	1909 Inches	1910 Inches	1911 Inches	1912 Inches
January	.21	.04	...	.98	...
February	.25	.06	...	.04	.04
March	...	.54	.43	1.02	...
April	.20	.03	.14	.96	.26
May	1.28	.65	.80	.27	4.73
June	.67	1.83	2.77	2.95	1.57
July	4.99	3.34	8.37	6.25	11.40
August	12.72	7.12	4.02	7.64	8.05
September	4.71	.49	.75	4.24	4.58
October	1.08	.55	.22	.32	.55
November	.19	...	.31	.96	...
December	...	...	...	.08	.14
Total	26.30	14.05	17.81	25.71	31.32

Maximum and Minimum Temperatures from 1909 to 1912.

	1909 Degrees Max	1909 Degrees Min	1910 Degrees Max	1910 Degrees Min	1911 Degrees Max	1911 Degrees Min	1912 Degrees Max	1912 Degrees Min
January	45.0	2.0	29.0	3.0	41.0	—2.0	46.0	8.0
February	51.0	12.0	52.0	2.0	47.0	—4.0	54.0	10.0
March	69.0	15.0	69.0	17.0	64.0	25.0	67.0	20.0
April	87.0	28.0	87.0	28.0	86.0	33.0	85.0	9.0
May	107.0	41.0	87.0	40.0	92.0	44.0	94.0	46.0
June	96.0	55.0	101.0	53.0	94.0	55.0	100.0	60.0
July	105.0	64.0	103.0	64.0	92.0	64.0	100.0	61.0
August	94.0	65.0	93.0	66.0	96.0	66.0	98.0	65.0
September	89.0	50.0	88.0	48.0	90.0	57.0	85.0	52.0
October	84.0	32.0	80.0	40.0	73.0	36.0	80.0	35.0
November	69.0	17.0	69.0	14.0	64.0	8.0	60.0	18.0
December	49.0	7.0	43.0	6.0	43.0	9.0	42.0	4.0
For Year	107.0	2.0	103.0	2.0	96.0	—4.0	100.0	4.0

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CONTENTS

	PAGE
The Question of Outer Mongolia	1
China, Russia and Mongolia	12
Sea Salt Industry in North China	15
Unmasked Japan	20
The Fisheries of China	23
Industrial Commission for China	23
Alterations in Peking	24
Uniform Accounts for China's Railways	25
Official Changes in Peking	25
River Conservancy In Kwangtung	25
Peking Kalgan Railway	27
Foreign Trade of China for 1914	29
New Mechanical Filter	33
Village Industries	34
Purity and Its Relation to Permanence in Metals	34
Asiatic Institute First Pacific Conference	35
Industrial and Commercial Notes	36
Classified Index to Advertisements	39

UNMASKED JAPAN

By the ratification on June 8 of the new Sino-Japanese Treaties, which were signed at Peking on May 25, Japan has set her seal upon documents which brand her as a nation which has deliberately subscribed to the belief that Right is Might. As a consequence of the thinly disguised disgust and resentment with which her original demands upon China were greeted by the civilized world she was compelled to withdraw some of the more outrageous, but she has succeeded in compelling China to concede much to which Japan had no right other than that of the power to take by force what could not be gained by favour. While in alliance with nations that were expending countless lives and treasure to preserve the sanctity of Treaties, Japan openly proclaimed that she believed that Treaties could and should be violated unless the violation could be prevented by force. That Japan's adoption of high ideals in regard to international relationships was genuine was never believed by those who had studied the Japanese closely, but the world generally has hitherto received its impressions from publicists who were well paid to present Japan in the most attractive light, and from superficial observers who could not see beneath the mask that was hastily donned when visitors were to be impressed. The policy of misleading the world by generating a belief that Japan was a pacifically disposed country that could only be induced reluctantly to resort to war when there was no honourable alternative, and that the Japanese were animated by a sincere desire to embody in their spiritual life the best of the teaching of the West, was maintained as long as the deceit seemed to serve a useful purpose. The pretence was dropped when Japan, forgetting that the European War was a transient though terrible incident, decided that the esteem and good-will of the world, if they were forfeited, were of less value than material advantages which could be secured merely by breaking solemn promises and discarding an irksome disguise which concealed the weapons of the freebooter beneath the cloak of an Apostle of Peace. With a supreme contempt for the intelligence of the world, inspired no doubt by the gullibility that it had hitherto exhibited, Japan invited it to disbelieve the evidence of its own eyes. The real object that was held in view when Count Okuma made statements which he knew, and his Government afterwards acknowledged, were directly contrary to fact, may never be known, but it seems probable that the Japanese thought that there was a chance that the good opinion of the world might be retained—and some of the Japanese recognised its value—by an application on a national scale of the Christian Science principle of suggestion. Those things that pained China and the Treaty Powers were there, but if Japan asserted that they were not there the pain would disappear. "You must transfer to us the rights you have given to Great Britain to build certain railways," said Japan to China, and in the next breath she said to Great Britain, "We are not taking any action that would jeopardise the rights of any country in China." Similarly with the demands that China should place Japan in the position of sole protector of her territorial integrity, and should appoint Japanese military, financial, and political advisers, and give Japan a voice in China's police administration. By denying the obvious effect that would follow the granting of these demands Japan apparently believed that the world would reject the evidence of its own judgment. The explanation of the inconsistency of Japan in at first being prepared to flout the opinion of the world, and then of endeavouring to conciliate it, is probably to be found in the fact that when Japan presented her demands to China she had not recovered from the fever of self-glorification that followed the surrender of Kiaochou. The Japanese really believed that this was a most brilliant feat of arms, and their success intoxicated them. For the moment the whole country allowed itself to express the opinion that had hitherto only been voiced by the extreme Jingoes, though believed by all, that Japan was far superior in prowess to the rest of the world and that she could do what she liked without fear of reproof or restraint. When the fever of self-glorification had abated somewhat, the clearer-headed of the Japanese authorities saw that they had betrayed themselves. Their endeavors to dispel the bad opinion that had been created could not possibly succeed, as denying a fact does not alter it—an elementary truism that the Japanese are apparently unable to grasp.

When the Chinese Government accepted the Ultimatum and later signed the Treaties under duress, they performed an act of singular heroism. The Government was a thing of yesterday. The loyalty to a long established Government that has grown and strengthened with the years, sometimes is unable to bear the strain if the Government has apparently been guilty of surrender of national rights. Nations have before this day been forced into war because the chauvinistic elements of the people overruled their rulers. The Government of the Republic of China had scarcely been established, and had certainly not had time to consolidate its position when Japan forced upon it the alternative of war or surrender of rights. To have plunged the country into war would have been the line of least resistance. The enemies of the Chinese Government who had been plotting rebellion under the benign protection of Japan, would be sure to represent any surrender of rights as a betrayal of the country. Yet, in spite of this the Government had the courage to risk their prestige and reputation and take the course that saved China from the horrors of war. Japan, her desire for cheap military laurels whetted by the tawdry triumph at Kiaochou, no doubt hoped that she would be given an opportunity to match her well armed and organized forces against those of China. The patriotism of the Government has baffled Japan's designs. Concessions have been made, but a more than sufficient recompense has been forthcoming in the fervid national spirit that has been aroused among the Chinese people. Instead of diverting their resentment from its legitimate object to the Government, the people have shown a remarkable desire to assist the Government to strengthen the country and so render impossible in the future predatory demands by unprincipled nations. Another recompense has been the transference to China of the esteem and good-will that had been previously felt for Japan by the Western nations. In the face of the menace of war China resolutely refused to be a party to the impairment of the treaty rights of other countries. Japan, conscious that the Treaty Powers were not in a position to protect their rights; sought to damage them; China, conscious that she could receive no aid from the Treaty Powers, sought to preserve their rights. It may not be to-day or to-morrow that the full recompense will be paid, but China will assuredly receive it—and so will Japan.

Even the national self-sufficiency of Japan has not been entirely proof against the storm of disapproval that her domineering diplomacy aroused in Europe and America. The consciousness is beginning to dawn upon some of her publicists that her violation of treaty pledges has gained for her nothing commensurate with her loss of reputation and the engenderment in the Chinese nation of the belief that Japan is her deadliest and most dangerous enemy. Though there is no organized boycott of Japanese goods the Chinese are not buying Japanese manufactures. Despatch of goods by Japanese steamers is avoided whenever possible, and passenger traffic on vessels flying the Japanese flag has practically ceased. The shipping and commercial community in Japan has awakened to the fact that the cost of the recent chauvinistic demonstration is falling upon them and they are beginning to grow restive. This was reflected in the Japanese Press as soon as the Ultimatum was accepted by China. The diplomacy of the Japanese Government was severely criticised. The *Jiji* expressed the opinion that the retrocession of Kiaochou was a foregone conclusion, and thought it strange that it was only in the last stage of the negotiations that the Japanese Government notified its intention of returning the territory to China. This important paper also regretted that the Government had not taken proper precautions before asking China for railway rights that had already been given to Great Britain—though it is significant that the bad faith and immorality of presenting such a demand at all receives no denunciation. Publicists quoted by the *Japan Times*, a Japanese controlled paper, declared that the Government by opening the negotiations "have exposed this country to the suspicion on the part of occidental Powers, that it was taking an unfair advantage of China's weakness when other nations had their attention concentrated on the European War." Others denounced the Government for failing to communicate the exact form of the demands even to the allied Government of Great Britain. Moreover public meetings were held in Tokyo and elsewhere to denounce the Government At one mass meeting of the Taishi Rengo Taikwai, an association interested in Chinese affairs, held in Tokyo on May 18, the following resolution was unanimously adopted:—

> **"The diplomacy of the present Ministry has done harm to the friendly Sino-Japanese relationship, has invited the suspicion of the Powers, and has injured the prestige of the Empire. The members of Ministry should take the responsibility and resign their positions."**

As far back as November, 1914, we warned the Japanese Government that the application of the policy that Might is Right to China would jeopardise Japan's good name, though we refused to believe at that time that Japan proposed deliberately to break her pledged word. The Japanese populace has become wise after the event.

There was, apparently, a realization on the part of the Japanese Government that the despatch of an Ultimatum to China in the circumstances that existed was such an outrageous and uncalled for proceeding that it was necessary to manufacture some sort of defence. Following the usual procedure, Count Okuma issued one of his stereotyped statements.

On May 8 he sent to an American paper the following:—

> "The motives and subjects of our negotiations with China are to meet the requirements of the altered conditions caused by the war with Germany and to bring closer relations with China by removing all causes of misunderstanding and thus to insure a permanent Oriental peace.
>
> "China does not understand the Japanese sincerity and argument. Despite Japan's peaceful persuasion for over three months and our explanations that Japan is actuated only by an earnest desire to secure a peaceful settlement and that we desired to restore Kiaochou to China subject to certain fair conditions, not only has she failed to reciprocate our sentiment of accommodation and conciliation, but she gave it no favourable consideration and she has demanded the unconditional restoration of Kiaochou and also compensation by Japan for the unavoidable damages consequent on the battles in Shantung.
>
> "China clearly declared that her demands were final. The Japanese Government, seeing the object of the negotiations thus ignored and the dignity and prestige of Japan greatly impaired, but still hoping that a peaceful conclusion can be reached, has after most careful deliberation decided to make some further concessions and to request China's reconsideration and acceptance before May 8. Our Minister at Peking has been instructed accordingly."

It will be seen that Count Okuma has followed the established Japanese practice of misrepresenting facts when they are not altogether suppressed. The despatch of Japanese troops to strategic points in China and the announcement that they would not be withdrawn until the negotiations were concluded are described as "peaceful persuasion," and as evidence that Japan was "actuated only by an earnest desire to secure a peaceful settlement." But there is no need to analyse Count Okuma's latest appearance as the President of the Japan Peace Society in the rołe of a fervent supporter of aggressive militarism directed against a weak and unoffending neighbour.

When the Diet reassembled in Tokyo it was inevitable that the Minister for Foreign Affairs, Baron Kato, should make a statement in regard to the Sino-Japanese negotiations. This statement was made on May 22. Baron Kato recapitulated the twenty-one demands and gave a short history of the negotiations which followed closely on the lines of the Japanese official communique issued on May 6. One sentence from his speech deserves reproduction. He said:—

> "They (the demands) include no item which is incompatible with the principle of territorial integrity, equal opportunities and open door, which the Imperial Government have in the interest of China declared to the Powers from time to time."

This grotesquely false statement also appeared in the Japanese official communique, and its reaffirmation by the Minister for Foreign Affairs after just citing demands that the meanest intelligence could see were utterly incompatible with the principles of equal opportunity and the open door, appears to be a proof of the theory we advanced in May that the Japanese suffer from what might be termed mental myopia. In answer to an interpellation Baron Kato said that an outline of the demands was given to Great Britain, Russia, France and the United States, but as the fifth group were "desires" they were not announced to the Powers at first. Subsequently they were communicated to these Governments. This sitting of the Diet closed after an ultra

patriotic member had called Baron Kato a traitor, presumably because the Government had given a qualified promise to return Kiaochou to China some time in the future. On June 3 a vote of censure on the Government was moved in the Diet. The increase of Japanese troops in China during the negotiations was declared to have been a bad blunder and to have aroused the suspicions of the Powers. The withdrawal of the demands in Group V owing to pressure from without was a grave mistake and had impaired the prestige of the Empire. In notifying the demands upon China to the Powers the Government omitted some of them. The net result was the destruction of the friendly relationship between China and Japan; the creation of an anti-Japanese sentiment throughout China, and the generation of suspicion on the part of the Powers. The motion was rejected by 232 votes to 133.

That the Japanese Parliament in which the Government possessed a large majority, should endorse the vote of censure was not to be expected, but the fact that it was moved is full of significance. It will be remarked that the very points raised by the foreign critics of Japan's recent policy were deemed to justify censure. Of course it would be extremely unwise to assume that the indignation with the Government is due to an appreciation that Japan's actions in regard to China have been morally indefensible. The failure to prevent the world from realizing that Japan was breaking her pledges and violating the engagements entered into when she subscribed to the Anglo-Japanese Alliance, was the real ground of complaint. The Japanese Government could break all the political commandments without fear of domestic criticism—if they were not found out. Speaking generally, the action of Japan in annexing Korea after definitely guaranteeing that country's independence and territorial integrity passed without censure from the outside world, and in consequence there was no criticism in Japan. The resentment of the Korean people was of little consequence as Japan was in military occupation of the country. In the case of China the circumstances were quite different. A series of punitive demands were presented at a time when the friendliest relations were supposed to prevail between China and Japan; the Japanese Government deliberately issued false statements in regard to the incidence of these demands; and finally the acceptance of many of them which were repugnant to the Chinese was forced upon them by the menace of war. As a result the Powers have realized that no assurance from Japan can be trusted, and the Chinese people have been convinced that the greatest peril that confronts the Republic is the "friendship" of Japan. The Japanese people, having recovered to some extent from the delusion that the reduction of Kiaochou was a military feat that demonstrated the irresistibility of Japanese arms, have for their part begun to realize that defiance of the civilized world is an expensive luxury. They have therefore turned their resentment upon the Government.

Baron Kato, the Japanese Minister for Foreign Affairs, has had the formidable task of meeting attacks from two entirely different quarters. Some of his critics upbraided him for concealing from the Powers the fact that the demands in Group V had been presented to China. He replied that these were not "demands" but "desires," and declared that Japan had not brought great pressure to bear to secure their acceptance. This, of course, is an absolute misstatement of fact, as Japan showed as great, if not greater, anxiety to secure China's accentance of the demands in Group V as any of the others. However, Baron Kato had to give some explanation of the careful attempt to mislead the Powers and it was probably thought that one more misrepresentation could not matter much. But Baron Kato was also criticized by those who cared nothing about the Powers being misled, but who were incensed that the demands in Group V were not insisted upon. Again Baron Kato was equal to the occasion, and explained that they were only dropped because China had promised to negotiate upon them separately. Thus Baron Kato is responsible for the statement that the demands in Group V were merely "desires" and of such little consequence that they were not insisted upon, and further that they were of such great consequence that it was only because China agreed to negotiate about them separately that they were not insisted upon! The endeavour to explain the immoral and tortuous policy that the Japanese Government has pursued has landed their apologists in such a maze that they affirm and deny in the same breath.

The exposure of the want of frankness and exactitude shown throughout by the Japanese Government has led to a belated attempt to show that the demands in Group V were specifically separated from the others in the original instructions sent to Mr. Hioki, the Japanese Minister in Peking, on December 3, 1914. It is, of course, possible that such instructions were sent. If they were the fact remains that *when the demands were presented to President Yuan Shih-kai no intimation was made that Group V stood on a different footing from the other Groups, and on several occasions, before the other Groups had been disposed of, Mr. Hioki sought to compel the Chinese delegates to agree to demands in Group V, notably that for the transference to Japan of rights already granted to Japan's ally, Great Britain.* It will take much more than the singularly fortunate discovery at the eleventh hour of instructions about which not a word had previously been breathed, to acquit Japan of wanton bad faith towards all the Powers, and particularly to the one to whom she was bound by the close tie of alliance. However much Japan may dissimulate and equivocate she will not be able to clear herself of the charge that she took advantage of China's weakness and the preoccupation of the Powers in the European War to press for the acceptance of demands that would alter the *status quo* in the Far East, impair China's independence, and render nugatory the principle of equal opportunity, all of which Japan had solemnly bound herself to maintain. Neither will dissimulation and equivocation secure her acquittal of the charge that she deliberately misrepresented facts, and endeavoured to secure for herself rights belonging to her own ally because she believed Great Britain was too preoccupied to protest. This demonstration of the fundamental insincerity of the political professions with which Japan has hitherto deluded the world must be an unpleasant shock to those who believed in the reality of her spiritual renaissance, but it is fortunate for the future peace of the Far East that Japan should have shown herself in her true colours before she could carry to success her policy of politically subjugating China.

In conclusion it may be as well, for the benefit of those who still think that anti-foreignism is unknown in Japan, to quote a portion of a leading article from the *Osaka Mainichi*, one of Japan's leading newspapers. The article is headed "International Hypocrisy," and reads in part as follows:—

> "The German Chancellor denounced Italy in the bitteres terms in the Reichstag for her bad faith and disregard of treaty obligations. Some ten months ago, when Germany herself tore up the treaty of Belgium's neutrality, the same Chancellor in the same house proudly declared that 'necessity knows no law.' It is so with England. When she declared war on Germany, it was only in name of safeguarding 'sacred' international treaties. Now the same England praises Italy for her tearing up the treaty and throwing the sword against the throat of her former allies. This is not so only with Germany and England, but is the usual mood of the Western people. They are very clever to cover their selfish ambitions with so-called principles which are fitting and appealing. So they annex other men's territory in the principle of Imperialism. They kill coloured people in the principle of promoting civilisation. They steal in commercial principle. They close the door in the principle of the Monroe doctrine. They ask to open other men's countries in the principle of Open-door. And they claim themselves to be honest and sincere. This hypocrisy at last brought this great conflagration in Europe, and they are now receiving the punishment they deserve."

Criticism of this kind from a subject of the country that annexed Korea and has just been prevented from closing the door in China argues lamentable lack of sense of humour. There is no necessity to expose the false assumptions and erroneous reasoning of this article; we reproduce it merely for the benefit of those who harbour misconceptions in regard to Japan's opinions of the world. If it be realized that the Japanese really do believe themselves to be the chosen people who may make, and need not follow, precedents, it will become easier for the other Powers to understand Japan's international policy and to take the precautionary measures that are necessary. That they do so regard themselves may be seen from the following extract from a column, "Voices from the Vernacular Press," which appeared in the *Japan Times* of May 25:—

"If it be permissible to admit of the existence of the Chosen People, and that they should occupy the highest position in the comity of nations, the *Yorozu* is confident that the Yamato race has every qualification and possibility to become one. Its history and freedom from mixture of blood as well as the power of expansion so clearly manifested so far, all go to make it possible for the people of Japan to come to hold the hegemony of the world. In the Far East, at least, Japan, according to the paper, is destined to hold the hegemony in its hand."

Not a little characteristic is an article in another portion of the same issue of the *Japan Times,* holding up to scorn an American writer because he had dared to suggest that Japan sought to secure the hegemony of the Far East!

Appended are the instructions alleged to have been given by Baron Kato to Mr. Hioki on December 3, 1914:

"In order to provide for the readjustment of affairs consequent on the Japan-German war and for the purpose of ensuring a lasting peace in the Far East by strengthening the position of the Empire, the Imperial Government have resolved to approach the Chinese Government with a view to conclude treaties and agreements mainly along the lines laid down in the first four Groups of the appended proposals. Of these, the first Group relates to the settlement of the Shantung question, while the second Group has for its chief aim the defining of Japan's position in South Manchuria and Eastern Inner Mongolia, that is to say, securing at this time from the Chinese Government full recognition of Japan's natural position in these regions, absence of which has hitherto been the cause for various questions tending to estrange the feelings of the two peoples towards each other. The object of the third Group is to safeguard the best interest of the Han-Yeh-Ping Company, with which Japanese capitalists are closely identified. It will thus be seen that there is nothing especially new in our proposals embodied in the foregoing three Groups, while as regards the fourth Group, it is only intended to emphasize the principle of China's territorial integrity, which has so often been declared by the Imperial Government.

"Believing it absolutely essential, for strengthening Japan's position in Eastern Asia as well as for preservation of the general interests of that region, to secure China's adherence to the foregoing proposals, the Imperial Government are determined to attain this end by all means within their power. You are, therefore, requested to use your best endeavour in the conduct of the negotiations, which are hereby placed in your hands.

"As regards the proposals contained in the fifth Group, they are presented as the wishes of the Imperial Government. The matters which are dealt with under this category are entirely different in character from those which are included in the first four Groups. An adjustment, at this time, of these matters, some of which have been pending between the two countries, being nevertheless highly desirable for the advancement of the friendly relations between Japan and China as well as for safeguarding their common interests, you are also requested to exercise your best efforts to have our wishes carried out.

"It is very likely that in the course of these negotiations the Chinese Government will desire to find out the attitude of the Imperial Government on the question of the disposition of the leased territory of Kiaochow Bay. If the Chinese Government will accept our proposals as above stated, the Imperial Government may, with due regard to the principle of China's territorial integrity and in the interest of the friendship of the two countries, well consider the question with a view to restoring the said territory to China, in the event of Japan's being given free hand in the disposition thereof as the result of the coming peace conference between Japan and Germany. As, however, it will be necessary in restoring the said territory to China, to lay certain conditions such as the opening of the territory for foreign trade, establishment of a Japanese settlement, etc., you will ask for further instructions when you propose to declare to the Chinese Government the willingness of the Imperial Government to consider the question."

THE FISHERIES OF CHINA

Statistics are unfortunately not available to show the annual value of the fishery industry to China. That this value would run into enormous figures will readily be believed when it is recalled that fish is one of the staples of diet, not only in the coastal regions, but also in the interior. The China Sea teems with edible varieties of fish and this is true of the rivers, streams and other inland waters. Many millions of the population are engaged in the industry. The methods employed have not varied for hundreds of years, and it is certain that much benefit would accrue if knowledge of European methods of catching, preserving and transporting fish were generally adopted.

With a little encouragement from the Government a considerable export trade could be built up. At present this trade is inconsiderable and is principally confined to the export of piscatorial delicacies to Chinese living in other countries. In view of the great advance that has been made in the preserving and canning of fish in other countries, and of the fact that for the greater part the catch in Chinese waters is suitable for foreign consumption there should be attractive openings in this direction for enterprising capitalists. The provision of swift parent vessels, steam-propelled, to supply the sea-going fishing fleets with necessaries and to collect the hauls for transport to central receiving depots would be one means of largely increasing the returns from the industry.

Some steps have lately been taken by the Ministry of Agriculture and Commerce to place the industry upon a better basis. A small appropriation has been made to be expended in the encouragement of fisheries, and provision has been made for the periodical inspection and registration of vessels engaged in the industry. Commissioners have been collecting data in regard to the number of men and vessels employed; the nature of the chief fishery products, and the annual value of such products. Recommendations in regard to the best means of developing the industry have been made by these Commissioners and those that are approved are being acted upon as opportunity and finances permit. A useful beginning has been made by the establishment of fishery schools along the coast. Several of these have been started and they are being well attended.

Although at present the fishery industry of China makes but little direct or indirect contribution to the national revenue, there is reason to hope that the attention that is being devoted to it by the Government will be productive of good results and that before many years have passed fishery products will take a prominent place among China's exports. The balance of trade is necessarily much against China at the present time and the Government recognises that any addition to the list of staples exported is heartily to be welcomed.

INDUSTRIAL COMMISSION FOR CHINA

The Government has for some time past realised the necessity of making an intelligent effort towards the encouragement of commerce and industry, and with this in view His Excellency Chou Tsz-chi, Minister of Agriculture, Commerce and Industry, petitioned the President in a lengthy memorial, embodying the whole scheme together with forty-eight articles for the governing of an Industrial Commission to be appointed upon the recommendation of the Ministry by the Chief Executive.

On June 9th the President replied to the memorial which he approved in detail. The following Commission was appointed:

Chairman, Yung Tao.

Vice-Chairmen, Mr. Roy S. Anderson, and Chang Sin Hu.

Messrs. Yung Tao and Anderson at present are Advisers to the Ministry of Agriculture, Commerce and Industry, while Mr. Chang is a Councillor of the same Ministry. The names and offices of the other members of this Commission will be given in the next issue of this paper.

The Commission will be divided into three main departments, as follow:

Department of Commercial and Industrial Experimentation.

Department of Information.

Department of Exhibits.

Each department will have a chief to be known as a "departmental chief" and each sub-division, of which there will be eleven, will have a chief to be known as a "sectional chief." There will be a Secretary and a Treasurer, who will conjointly control

the general affairs of the Commission. The Chairman and Vice-Chairmen are appointed by the President upon the recommendation of the Ministry, while the remaining officers of the organisation are appointed by the Ministry.

For the present the Commission will be housed in the buildings heretofore used exclusively for the National Commercial and Industrial Museum. The Commission could not have found more suitable quarters, and by order of the Ministry the buildings have been repaired and furnished to accommodate the work to be carried on by this new organisation.

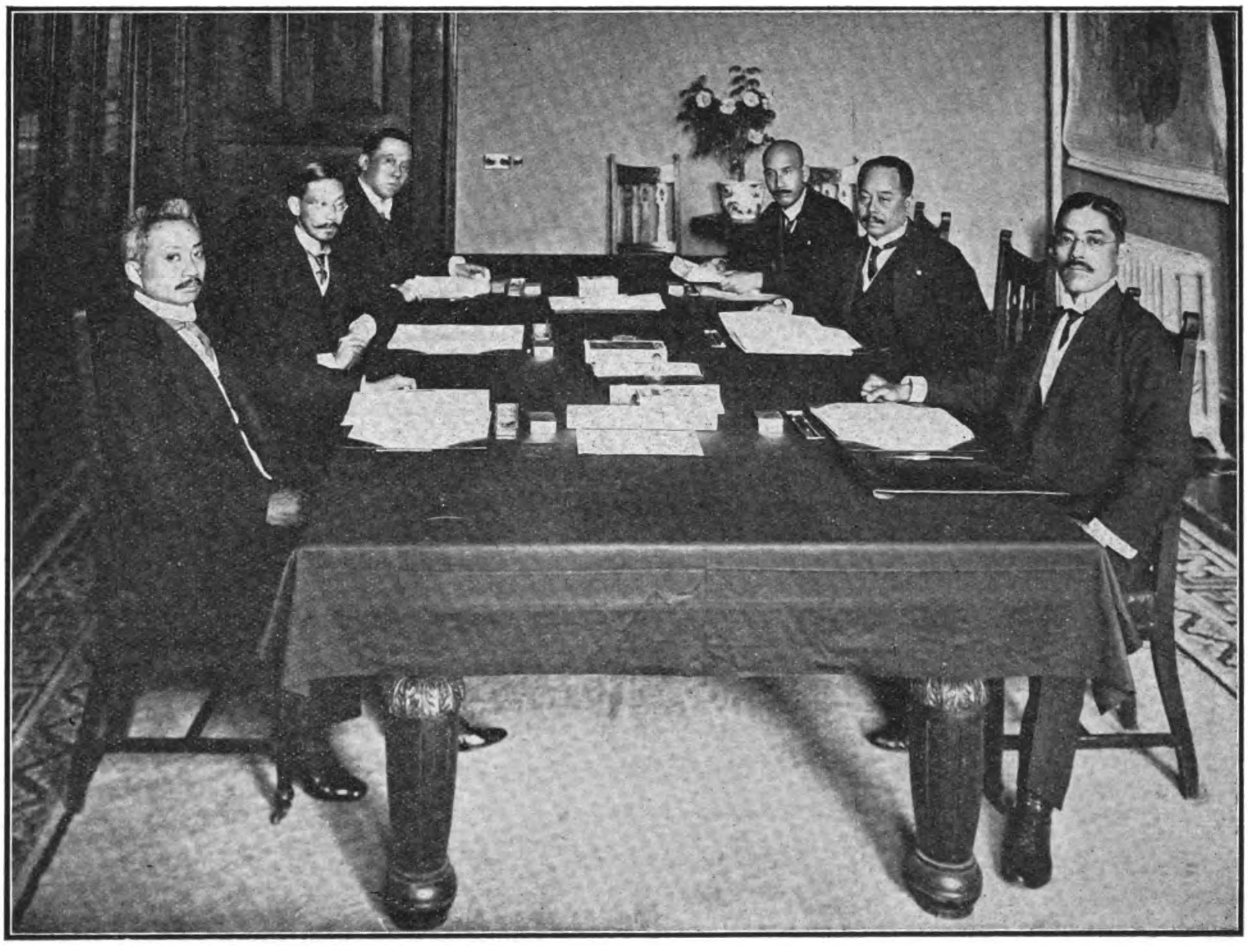
The main objects of the Commission are systematically to assemble all useful data on the various lines of commerce and industry, and to make scientific research and experiments where needed. All information will be disseminated that is calculated to stimulate and assist in the building up of Chinese commercial and industrial enterprises as well as to encourage the investment of foreign capital. It has been extremely difficult in the past for the foreign business man to secure the needed information for the establishment of any enterprise in China, and it has been equally difficult for the Chinese themselves.

The Commission intends to establish branches throughout China, and desires to sustain the most cordial relations with the official and private commercial and industrial organisations in each foreign country. The Chinese Government fully realises that foreign co-operation is of vital importance, and it is the sincere desire of the Government to invite this active assistance from abroad.

ALTERATIONS IN PEKING.

The construction of a railway round the city of Peking to connect the Peking-Kalgan and the Peking-Mukden railways, and the alteration of the famous Chienmen, or central southern gate of the Tartar City, were begun on the morning of June 16. This work was referred to in the FAR EASTERN REVIEW of June, 1914, and will constitute a marked improvement in the handling of both rail and ordinary traffic at the capital. Four openings are to be made in the city wall in immediate proximity to the Chienmen to facilitate the great vehicular and pedestrian traffic always pouring in and out of the city, and the massive demilune of the gate is to be removed to be replaced by a well arranged esplanade and roads giving freer access to both the Peking-Hankow and Peking-Mukden stations.

The Minister of the Interior, Mr. Chu Chih-chen, inaugurated the work with some ceremony on the morning of June 16, a special silver pick having been provided for the purpose. He also made a speech outlining the importance of bettering the city and making adequate thoroughfares. In this respect the Minister has done a great deal for Peking. There now exist splendid macadamised roads, where once there were quagmires, and other new roads are being built. In a future issue we will deal further with this phase of development in this ancient capital.



DELEGATES REPRESENTING CHINA AND JAPAN IN THE RECENT NEGOTIATIONS

LEFT HAND SIDE OF TABLE, (reading upwards): Chinese Vice-Minister of Foreign Affairs, MR. TSAO JU-LIN; Chinese Minister of Foreign Affairs, MR. LOU TSENG-TSIANG; A Secretary of the Chinese Ministry of Foreign Affairs, MR. SZE LU-PENG.

RIGHT HAND SIDE OF TABLE, (reading upwards) Third Secretary, Japanese Legation, MR. T. TAKAO; His Excellency the Japanese Minister, MR. EKI HIOKI; First Secretary, Japanese Legation, MR. YUKICHI OBATA.

UNIFORM ACCOUNTS FOR CHINA'S RAILWAYS

Steps have been taken by the Minister of Communications at Peking, Mr. Liang Tun-yen, to have the accounting systems devised by the Unification of Accounts Commission introduced on the various Chinese railways. In accordance with this decision the Minister of Communications has issued instructions to the various railways as follow:—

It is hereby notified that hereafter Inspectors of Accounts will be sent by this Ministry to the different railways from time to time to examine the accounts and to keep in close touch with the accounting work of the different railways. On the arrival of such Inspectors the Railway officials are hereby ordered to furnish them with all necessary information and to assist them in making their examinations.

Although monthly statements and annual reports are now sent by the different railways to this Ministry for audit and approval, such statements and reports only represent the summarized results of the transactions taking place during the periods concerned. It is impossible for such statements and reports to contain the detailed items and to show definitely the circumstances under which the transactions were made. This Ministry, therefore, deems it necessary to appoint and despatch inspectors of accounts from time to time in order to ascertain whether the accounts check with the vouchers, whether the funds are properly expended and whether the methods of entry are adequate and satisfactory. With regard to other problems in relation to accounting it is also deemed necessary that such inspectors be despatched to make proper inquiries so that misunderstandings may be avoided and progress made. As the mileage of railways will increase and railway problems tend to become more complicated from year to year, and as many of the lines will be far away from Peking, such inspection will be more indispensable as time goes on.

According to former practices, antiquated reports were translated and rendered, these being considered adequate to represent the original accounts; and unless protests were made or special inquiries held wheie fraud was suspected, actual investigation was scarcely resorted to. Therefore the appointment of inspectors often aroused suspicion and antagonism and created unfavourable comment and uneasiness.

But it should be understood hereafter that the inspection of the accounts of your railways is not inspired by any suspicion of irregularities but is undertaken purely as a part of the regular routine of railway administration. In ordinary business administration, the shareholders of a company or corporation elect or appoint certified public accountants as a matter of course to inspect and audit the books of the company. In foreign countries the accounts even of private railways are subject to inspection by Government inspectors as well as by those appointed by shareholders. Moreover, if the accounting system of a railway is adequate and operating satisfactorily, or if the traffic service of a railway is making progress, its merits will be disclosed and made known better througl. the testimony of the inspectors.

It is therefore ordered that the different railway administrations should furnish the inspectors of accounts with all necessary information and give due assistance.

OFFICIAL CHANGES IN PEKING.

Several official changes have taken place in Peking during the month. Mr. Chang-hu, co-Director of the Central Salt Administration, has been removed from office and has been replaced by Mr. Kung Hsin-chan, a native of Anhui Province. Mr. Yih Kung-cho, Vice-Minister of Communications, has been removed and his work is being taken over by Dr. George Mark, co-Vice-Minister of Communications. Mr. Chao Ching-hua, Managing Director of the Tientsin-Pukow Railway, has also been removed. All of these officials are to be tried on charges of corruption.

RIVER CONSERVANCY IN KWANGTUNG PROVINCE

Translation of the Report of the Director-General of the Bureau of River Conservancy in Kwangtung

The Bureau of River Conservancy of Kwangtung Province has been organized by a Presidential Mandate, and Mr. Tan Hseh-hung has been appointed Director-General to take charge of the conservancy work. For a preliminary inspection of the water courses, the temporary service of Mr. Hugo von Heidenstam, Chief Engineer of the Huangpu Conservancy Works, has been secured, as was publicly announced on January 1. Mr. Heidenstam arrived in Canton on January 30, and started on February 2nd with Director-General Tan for a reconnaissance of the rivers as far as Yow Tsa Tan, above Wuchow, on the Si Kiang; Lan Kang Wei, on the Pei Kiang; and Ta Tun on the Tung Kiang. Careful examinations have also been made of the important tributaries of the above named rivers, which included the trip to examine the elevation of the land between Hsin Hsing and Kai Ping with a view to ascertaining the possibility of excavating a new outlet to the sea. Extensive investigation has been made throughout the trip concerning the causes of floods, by gathering information from the Maritime Customs authorities and by taking instrumental records with regard to the rainfall, discharge of water, velocity of current. and the width and depth of the rivers.

Director-General Tan and Mr. Heidenstam returned to Canton on Feb. 11, when Mr Heidenstam had to return to Shanghai owing to the urgent engineering works of the Huangpu Conservancy. He left for Shanghai on Feb. 19. As a result of the reconnaissance trip, Mr. Heidenstam has expressed the opinion that a year's time will be required to make a careful survey examination of the important rivers and determine the methods of building the dikes, from which complete detailed maps have to be prepared. Then, with the data thus obtained, proper construction plans can be determined. The survey work must precede the actual construction work, without which it is impossible to determine the construction plans and to estimate the construction expenditures. Mr. Heidenstam has therefore drafted a general plan for the survey work and has recommended a Swedish engineer to be the engineer and surveyor of the Kwangtung River Conservancy Bureau, which has been approved by Director-General Tan. Mr. Heidenstam advised that the engineer should proceed to make an examination of the rivers, and, when that is completed, go to Shanghai to study the Huangpu Conservancy Works and have a personal discussion with Mr. Heidenstam. The engineer assumed his duty on March 1, and on March 3, he started with Director-General Tan for another reconnaissance trip of the rivers, following the same routes as were taken on the first trip. It happened then that the water along the routes was at its lowest level, for which many water marks have been established on the rivers as a basis of comparison with the survey records. The Engineer and Director-General Tan returned on March 11, and the Engineer left for Shanghai on the same day.

The general plan of survey drawn up by Mr. Heidenstam, agreed to by the Engineer, and approved by Director-General Tan, comprises seven parts, which will be carried out with organized survey parties as soon as the Engineer returns from Shanghai. The survey work on the Si Kiang from Mo Tao Men to Wuchow, is divided as follows:

1. Levelling survey of the water courses.

2. Survey of important tributaries and other important points such as river junctions, shallow waters, and gorges.

3. Observation stations should be established at selected points for measuring and recording the velocity of current and discharge of water. The data thus obtained shall be used for plotting the velocity and discharge curve in order to determine the relation between water level and the discharge of water.

4. Inspection and boring, if necessary, of the river banks and river beds.

5. To ascertain the amount of mud carried by the river and its tributaries in summer and winter.

6. Observation of rainfall should be taken at various observation stations, where water gauges and tide gauges, if necessary, should also be established.

7. Survey of the large dikes, from which plane and side view maps are to be prepared.

To complete within a year the survey of numerous dikes and water courses covering such a wide area requires division of work; it is proposed to organize six survey parties each taking up a division and all working at the same time. The estimate for the year made by Mr. Heidenstam for survey expenses, purchase of survey instruments and steam launches, stationery and sundry expenses and so on, will be about $160,000 Hongkong currency. Since the commencement of the Bureau, $20,000 has been received, being the remittance from the Kwangtung Guild of Peking; $100,000 in subsidiary coins has been transferred from the Famine Relief Office to this Bureau by order of Governor Li, and $20,000 Canton Notes, equivalent to $9,100, has been transferred to this Bureau from the provincial funds through the request of the Eighth District Guild of Hongkong. The total amount of the above receipts is approximately over $110,000, which falls far short of the expenditure estimated by Mr. Heidenstam. In view of the above circumstances, the Director-General desires to exercise strict economy in the administration of the affairs of the Bureau, and to do his best in devising means to make good the deficiency.

The Si Kiang rises in the plateau of Yunnan and meets the Liu Kiang near Sunchow. Thirty miles above its confluence with the Liu Kiang the Si Kiang first joins the Hungshui Kiang, which also rises in Yunnan and has been regarded by some authorities as the parent stream of the Si Kiang. Running through a length of 1250 miles, it carries down in its course a large quantity of sand and mud which silt up at various points in the river, on account of the irregular shape of the field enclosures alongside the lower course. Such silting up inevitably raises the river bed, thus forming patches of shoal water here and there. In addition to such obstacles, the river unfortunately has no outlet from Wuchow to Samshui and the dikes have not been built systematically according to the principles of conservancy. As a result, the area around the lower course was always flooded whenever there was an overflow in the upper course. For the purpose of a proper conservancy, the following five plans have been suggested.

1. *Prevention of Overflow.*—There are two different ways for the prevention of overflow, the establishment of reservoirs in the upper course and extensive afforestation. As the upper course of the Si Kiang runs through many mountainous districts with rich valleys the cost of purchasing the fields together with that of building the reservoirs must be so great that it would be beyond the means of the Bureau to carry out. Moreover, there will be the maintenance cost of the reservoirs from which no profit can be derived. So the plan of building the reservoirs is out of the question. On the other hand, the plan of extensive afforestation is adaptable. The forests can absorb quantities of rain water like a sponge, and the roots can hold the soil firmly in place and help resist erosion, which furnishes the chief supply of silting in the river. Apart from this protective value, extensive afforestation has also its economic value in the production of wood. It is advantageous, therefore, that this plan should be adopted for the purpose of preventing overflow, although its effect could only be brought about in a slow manner. It is now under consideration with a view to securing the co-operation of the administrative authorities of the Si Kiang valley in carrying out the plan.

2. *Dredging.*—The formation of patches of shoal water is evidently due to silting caused by the irregular shape of the field enclosures in the lower course. It is also due to the fact that the unevenness in the width of the river has the effect of reducing the running force of water through wide sections so as to allow the silting of sand and mud which it carries. In occidental countries where conservancy work is efficiently carried out, it is quite common to have dikes built in wide sections of the river in order to keep at an even rate the discharge of water, thereby preventing silting in any form. This method can well be applied in this case together with extensive dredging of the river beds, and also for widening the narrow parts of the river. A definite plan will be decided upon after a careful survey.

3. *Dividing the Water Force.*—Had there been an outlet from Wuchow to Samshui, the force of the water could have been easily divided. The lack of it has led to the proposal of building one. Several surveys have already been made by the Government Army Survey Office in Canton. The Hsin Hsing Kiang and Yang Chun Kiang route, via Tien Tang Heu and Yang Chun Hsien, which has been formerly proposed, has been found impracticable for lack of adequate river grading. The Hsin Hsing Kiang and Kai Ping route, via Chin Chi Wa, possesses proper river grading, only the area around Chin Chi Wa is highly mountainous so as to render excavation work difficult. Fortunately for the latter route, there is another intermediate point where the desired work can be easily effected, and that is via Kao Ming Ho. When this route is open, it will be easy to lead the water from Kai Ping into the sea. The question now is to have a careful re-survey of the latter route and also a general survey of the surrounding districts with a view to finding a still better route.

4. *Repair of Dikes.*—It has been a regrettable fact that the dikes built in the past have been done unsystematically and without co-operative work, and that the unscientific slopes and culverts have been the chief cause for the breaking of the dikes. The dike built in Sang Yuan Wei was well done with cement and sand, whereas those built in Chen Tang and Ta Wae were made of gravel and earth. The natural result was that the latter were weak, and broke before the violence of the current. Again, the dike built in Lan Kong Wei which has been considered one of the best, broke shortly before the inspection trips. Mr. Heidenstam, the engineer, had occasion to examine into the causes, and he was of the opinion that the breaking was due to lack of proper foundations. Had the foundation been scientifically laid down, such trouble and loss could have been easily avoided, and a large amount of expenses for its repair could have been saved. In view of these circumstances, it is highly important that this Bureau should establish a separate office, supervising, inspecting, and taking charge of all affairs relating to the construction, repairs, and improvement of dikes and culverts. While the work of financing, issuing tenders, granting contracts, and dividing the construction, could be left to the local managements the above office should be responsible for the uniform adoption by the local managements of the plans authorized by the engineers of this Bureau, the object being to effect a uniform system in the work.

5. *Improvement of the Lower Course.*—In addition to the field enclosures in the lower course, there are many improper dams which, like the field enclosures, are built by local people, and calculated to derive selfish local benefits with no regard for the general welfare. Such works, being sometimes the cause for the overflow of water, should be destroyed in the interest of the public, and any similar additions should be strictly prohibited. It is the intention of this Bureau to conduct a careful survey for the purpose of carrying out these measures effectively.

It is sincerely hoped that these five proposed plans for conservancy of the Si Kiang River will meet with the general approval of the public, and will call forth its united support. The surveying work is expected to be completed a year from now, but the actual work will need much more time in its execution. While the work is just begun, the seasonal overflow is fast approaching. Preparations on the part of the public to meet such an emergency should be done right now, before it is too late.

THE PEKING-KALGAN-TATUNG RAILWAY

REPORT OF OFFICIAL INSPECTION TRIP

The following is a summary of the Report on the Inspection of the Kalgan-Tatung Railway, by Shen Chi, Director of the Department of Railway Engineering in Peking:

In accordance with orders I set out for Kalgan on the 6th of February with Mr. Y. C. Whang, Chief of the Traffic Division, and Mr. Yang Sho, Junior Expert, conjointly with Mr. Kwang Sung-Mow, Chief Engineer of the line, and on the 8th we travelled from Kalgan towards Tatung by train. We stopped at every station and every important bridge for inspection. On the 9th we inspected all the buildings, shops and station premises at Tatung. On the 10th we reached the end of the track of the Tatung-Fengchen Section, which was about 20 li from Tatung. On the 11th we examined the place where the Tung-Cheng line will join, and also examined the Weiren branch line. The entire trip took us six days.

1. *The construction work of the entire section:* The construction work of the entire section between Kalgan and Tatung has been completed with the exception of the sidings at the Tatung Station. Half of the sidings originally planned have not been constructed on account of the traffic not being fully developed. The mileage of the main track and sidings, the number of bridges and drains and their dimensions, the stations, mechanical works, material storehouse, staff quarters, water-towers, turn-tables, electric wires, etc., are found correct according to the list submitted by the Peking-Kalgan Railway.

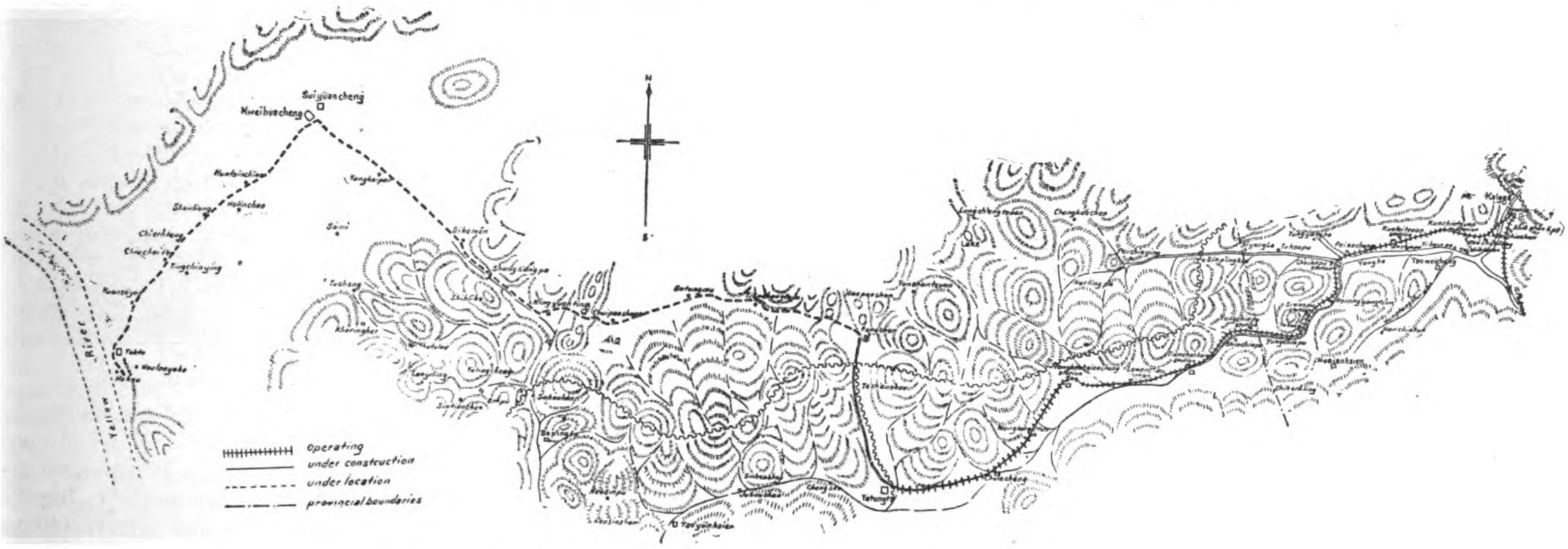
2. *The Track:* As to the track, the minimum radius of the curves is 1,000 feet, and the steepest gradient is 1:115, which are suitable for all the purposes of a main line. The route as originally surveyed and determined upon seemed too steep. In view of the difficulties in running the trains on the Kwan-Kow Section the original plan was modified at several points and the degree of gradient was changed from 1:40 to 1:115. Although the line is lengthened by about 10 li on account of this modification, the construction is much facilitated by choosing this level route, and half of the expense as originally estimated has been saved. The change of the route not only saves the capital expenditure but also makes it suitable for all purposes of a main line, which will prove of considerable benefit when the line is extended to Sei-Yuan or joined with the Tung-Cheng line.

3. *Bridges and Drains:* The largest bridges are the Yu-ho Bridge (18 spans of 100 feet each; height, over seven chang) and the Ta-yang-ho Bridge (16 spans of 100 feet each; height, over six chang). Next in dimension is the Shiao-yang-ho Bridge (5 spans of 100 feet each). The total number of major and minor bridges is 234 with 459 spans, and the total number of drains is 372 with 373 spans. The total length covered by bridges and drains is 14,360 feet. The expenditure for bridges amounts to $2,089,500, the average expenditure per foot of bridge being $145, which is less than half of the cost for bridge work on some of the lines newly constructed in our country. The construction is firm and the material used, strong. After careful examination they proved to be sufficiently strong for all purposes.

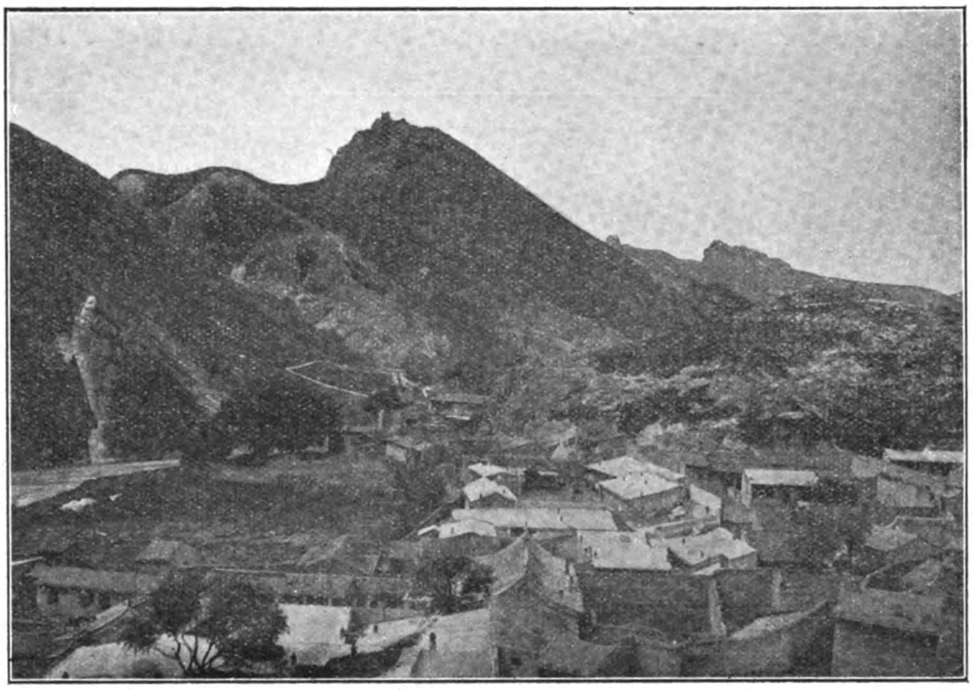
4. *Stations and Buildings:* All the stations and other buildings are constructed in simple style, all unnecessary embellishments being dispensed with. They are durable and fit for practical use. In order to encourage native products, foreign materials are avoided whenever suitable materials may be obtained from home producers.

5. *Rolling-stock:* As to rolling-stock, the wagon bogies are ordered from abroad while the upper structures are of good material and durable construction; and they are of the kind that can be easily repaired in this country. Safety devices are of the latest pattern, both air brake and hand brake being used. The wheels are of the Barhom type, which stands well the wear and tear at places where curves are sharp and numerous.

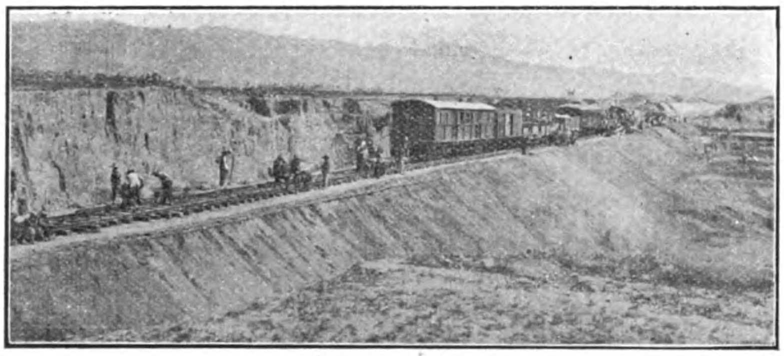
6. *Comparison of the actual and estimated items of expenditure:* As originally estimated the length of the line was 321 li and the expenditure was a little over Tls. 7,016,000, which is about $10,000,000. It was to be completed in three and a half years (the work began in July, 1909). The line as now completed embraces a length of 331 li at an expenditure of little over $8,604,000. Reckoning from July, 1909, to the end of 1914, the work has taken about six and a half years. Although the period of construction is prolonged for three years the expenditure is about $1,400,000 less than what was estimated. If we compare the items estimated with those actually expended, we shall find that the expenditure for road foundation is about $1,380,000 less than the estimate. This is due to the adoption of the new route which is less hilly than the route first chosen. The actual expenditure for general direction is about $280,000 more than what is allowed by the estimate, on account of the extension of the period of construction. As to rolling-stock, the estimate provided for 18 carriages for the second and third class passenger train. Although these have not been purchased, there is a fund of about $70,000 set aside for the purpose. They have purchased one locomotive and 100 tons of wagon in excess of the estimate. However, taking the actual expenditure for



Route of Extensions of the Peking-Kalgan-Tatung Railway

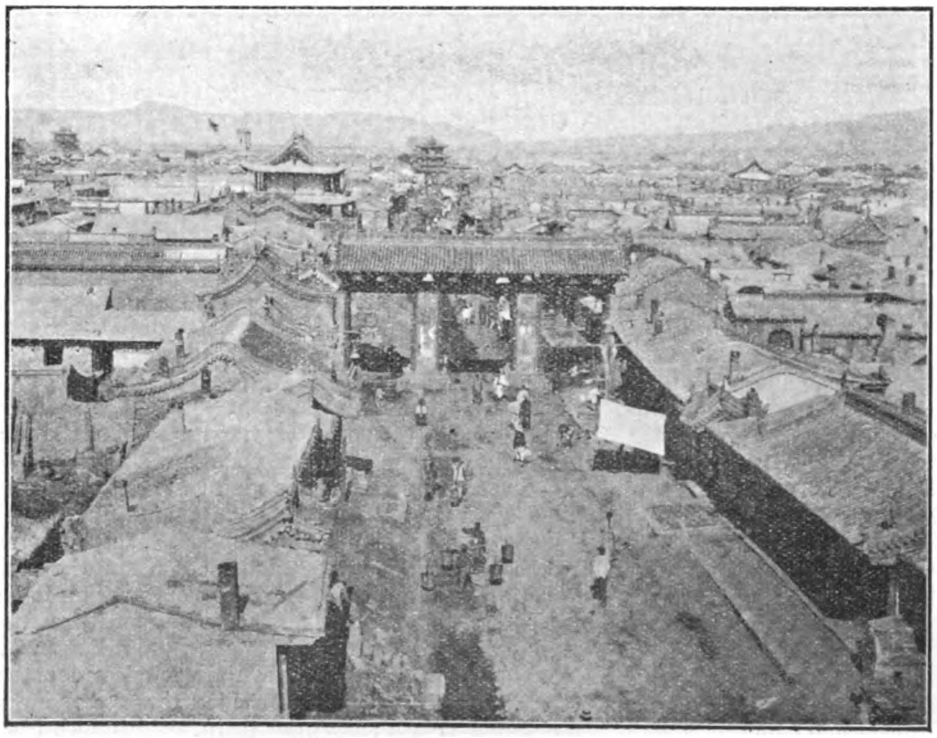


View of Kalgan, Former Terminus of Railway



Railway Crossing Chasm in the Loess

Concrete Culvert to Carry Embankment



View of Tatung-fu, Present Terminus of the Line

rolling-stock as a whole, it has not varied much from the estimated amount. The rest of the items of actual expenditure have not differed from the estimate to any appreciable extent. (A table showing the comparison of the different totals is herewith appended.)

7. *The Progress of Construction work on the Tatung-Seiyuan Section:* Work has begun on the Section between Tatung and Fengcheng, a distance of over 70 li. The track has been laid as far as Yangtsung, a distance of about 20 li. As soon as the bridge at Yangtsung is completed the track will be further extended, and in the month of June or July this year train service will be opened as far as Fengcheng. As the latter place is a trade centre, the earnings of the Railway will be greatly increased as soon as the service is established. Traffic is rather scarce beyond Fengcheng, and no further increase in earnings can be expected until Seiyuan is reached. We found that bituminous coal (natives call it Ta-Tang) is produced at Weiren-hsien, 70 li southwest of Tatung. On account of the lack of transportation means the coal is only mined in winter. The output is estimated at about 2,000 tons per day. If a sum of $1,000,000 can be raised within a year or so for the construction of a branch line to Weiren-hsien, this branch line would be able to contribute to the earnings of the main line and the annual income may be increased by $1,000,000 or more. Again, if we appropriate the surplus from the Peking-Tatung line for the construction of the Tatung-Seiyuan Section, it will be of great benefit to both lines.

The above is a summary of the facts about the line as they are and of the plans to be carried out in the future. If we take into consideration the facts of the line being one constructed with our own capital, the officials in charge being chosen by our own Government from among our own countrymen, the entire line lying in the extremely cold region of the northwest, having only six months in the year available for work on a large scale, we cannot but credit the officials in charge for their energy and enthusiasm in carrying out such a great engineering project, with the different parts of the work so properly laid out and at an expense so cheap. I beg to suggest that those officials who have rendered their services on this occasion be rewarded according to their respective merits so that they may be more encouraged in the future. Whether this can be done remains at your discretion.

Peking-Kalgan-Tatung Railway.

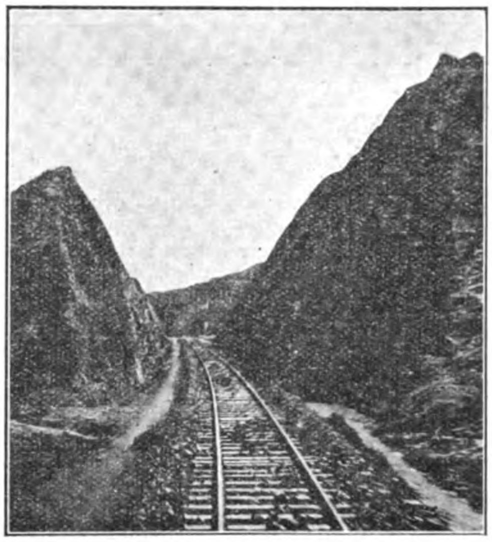
REPORT FOR THE YEAR FROM JUNE 30, 1913, TO JUNE 30, 1914.

In his report for 1913-14 the Managing Director of the Peking-Kalgan-Tatung Railway (Mr. Kuan Mien-chuen) explains that with the introduction of accounting forms, as arranged by the Committee for the Unification of Accounts, accounting work has been more accurate since 1913. In April, 1914, the Revenue Account of the Railway was transferred from the Traffic Department to the Department of Audit and Accounts in order to conform with the newly introduced uniform rules.

Owing to unfavourable conditions goods traffic was not so prosperous during the year under review, though the receipts on the Peking-Kalgan section exceeded those of the previous year by $430,000. This may have been due in a sense to the abolition of the likin tax at Fengtai station (the junction with the Peking-Mukden line), an action which also beneficially affected both the Peking-Mukden and Peking-Hankow Railways.

Owing to financial stringency the engineering work on the Chang-sui (Peking-Tatung) Extension could not be fully undertaken. The main bridge was built over the Yu-ho, at Tatung, and the engineering work was extended from Tatung to Fengchen, the cost amounting to $1,490,000, which was charged to capital account. The traffic receipts between Kalgan and Tatung were $23,000 less than in the previous year on account of this section being only partly opened for traffic.

The following figures are included in the annual report:—

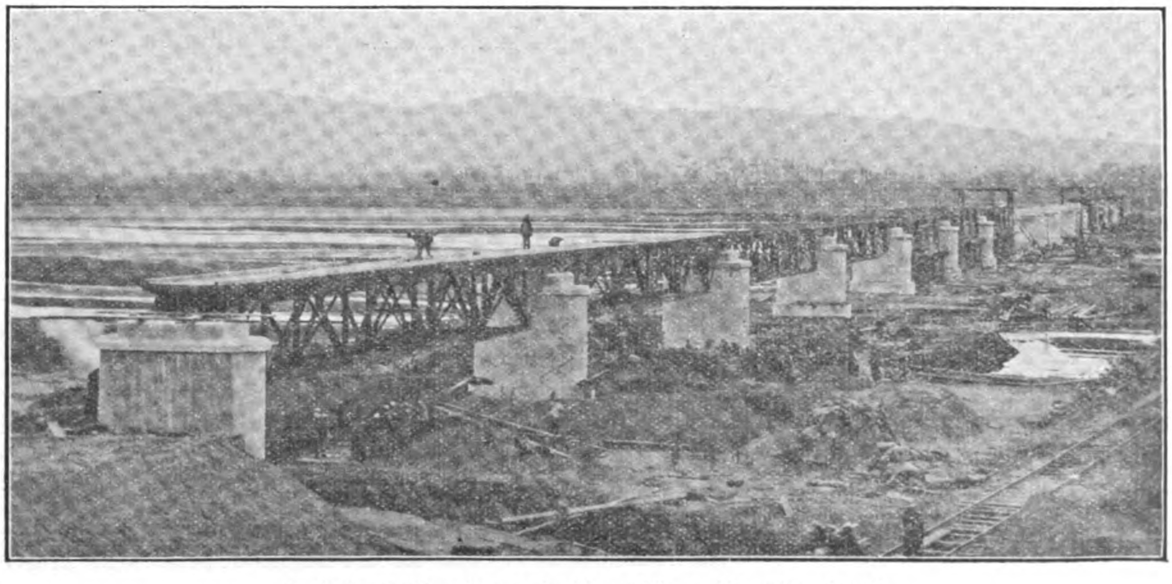


Cutting through Rocks along the Yang River

The Kalgan-Seiyuan Railway.

TABLE SHOWING THE COMPARISON OF THE MAIN ITEMS OF ACTUAL AND ESTIMATED EXPENDITURE FOR THE CONSTRUCTION OF THE LINE FROM KALGAN TO TATUNG.

Items	Estimated Expenditure $	Actual Expenditure $	Actual Expenditure in excess of estimated Expenditure $	Actual Expenditure less than estimated expenditure $
General Direction	1,022,870	1,312,840	289,970	
Preliminary Expenses	307,280	157,380		149,900
Purchase of Land	398,240	365,150		33,090
Road Foundation	2,418,580	1,028,860		1,389,720
Bridges	2,149,300	2,089,500		59,800
Protection of the line		11,000	11,000	
Telegraph and Telephone	6,500	83,000	18,000	
Track	2,223,600	2,033,550		190,050
Station and Buildings	259,300	415,000	155,700	
Rolling Stock	1,179,400	1,107,000		72,400
Total	10,023,570	8,603,280	474,670	1,894,960
	1,420,290		1,420,290	



Building Bridge Across the Yang River—Now Completed

THE FOREIGN TRADE OF CHINA FOR 1914

From Report by F. E. Taylor, Statistical Secretary, Chinese Maritime Customs.

Notwithstanding the difficulties to be overcome after the tremendous upheaval of 1911, when the whole government of the country was temporarily disorganised, followed in 1913 by a serious rebellion against constituted authority that destroyed credit and paralysed trade over a large tract of territory, the year 1914 opened with more favourable prospects, and there was evidence that Chinese merchants were gradually regaining confidence in the stability of the Central Government, says the Statistical Secretary of the Chinese Maritime Customs in his Abstract of Statistics for 1914. There was every reason for such confidence. The provincial officials had been working hard to restore order, and provincial finances had been improved to such an extent, that most of the provinces had become self-supporting. The most striking evidence of confidence in the Government was the success of the internal loan of $24,000,000, which was actually oversubscribed, in extraordinary contrast to all previous attempts to float domestic loans. The deplorable state of the currency, which had become a very serious obstacle to trade, not only was recognised by the Government, but the people themselves assisted to some extent in clearing up the confusion. The country was flooded with depreciated paper money, mostly issued during the early months of the Revolution. In Canton the depreciation had proceeded so far that 1 paper dollar was worth only 34 cents, until in July the Government redeemed notes to the value of $31,000,000 at a discount of 50 per cent. In Szechwan the Government accepted salt revenue in the shape of depreciated notes with the object of burning them—a course which raised the value of paper money to par and at the same time enabled the Government to fix the regular quota to be paid in future.

Currency and Finance

The inconvenience of having a variety of dollars in circulation, issued by different Mints and each having an exchange value of its own, has to a certain extent been relieved by the people, who have shown their preference for sycee (Silver ingots) and reconverted enormous quantities of dollars into bullion. It is hardly necessary to point out that a continuance of this process will prove quite useful in assisting the establishment of a Government standard coin. The issue of paper money has now been brought under control, and there is reason to hope that the reform of the currency, perhaps the most important reform needed, will before long become an accomplished fact. The outbreak of the war in Europe prevented the conclusion of the loan under negotiation with the Quintuple Group which was destined partly to serve this purpose, but the difficulty of obtaining funds from outside led the Chinese to make more strenuous efforts to solve their financial problems at home, and the increased revenue derived from salt, under the able direction of Sir Richard Dane, and the success of the internal loan, together with the absorption of the premium bonds issued through the Hsin Hua Savings Bank, may be taken as evidence of the potential resources of the country at the disposition of a Government in which the people have confidence.

When the year opened exchange was favourable to imports and clearances had greatly improved, while at the same time exports did not appear seriously impeded. Trade continued brisk until April, when it became very dull; but notwithstanding this the Customs revenue at the end of June showed a gain over the previous year's collection to the same date of *Hk.Tls.* 889,200, in spite of a shortage in opium duty and likin of *Hk.Tls.* 1,192,782.

As regards climatic conditions, crops were fairly satisfactory; but in Kwangtung during the summer vast tracts were inundated along the West and North Rivers by floods that devastated 15 districts, causing extensive damage to property and crops and involving much loss of life. Crops, such as beans, groundnuts, and sesamum, were also extensively damaged, and in some cases totally destroyed, by floods in North Kiangsu. In September parts of Manchuria, after a prolonged drought, were also visited by disastrous floods. Hurtful as were these floods, it is possible that their injurious effects on commerce were small as compared with the paralysis of trade brought on by the ravages of a brigand who called himself White Wolf. Many towns were looted, before White Wolf was killed on August 5, near Lushan, in Honan. During his destructive career White Wolf practically stopped all trade in the neighbourhood of his operations, as it was impossible to move either money or goods.

Unfortunately, his suppression was succeeded by the outbreak of the great war, the effects of which were immediately felt in China, and exports could no longer be financed. Later, when conditions became more settled and cargo was offering, the German and Austrian flags had disappeared, much British and French tonnage had been engaged by their Governments, and neutral steamers had found more profitable employment elsewhere; so that there was such a scarcity of tonnage that in spite of willing buyers and sellers the cargo could not be accommodated. Naturally, in the absence of competition, freights went up, and heavy war risks assisted in reducing possible profit. Moreover, the prohibition of code telegrams, which was carried out without the slightest consideration for the needs of trade, had the effect of stopping any new business, as foreign exporters were unable to explain to their correspondents at home, at reasonable expense, the opportunities for new business brought about by war conditions; and the Chinese, unable to dispose of their products, were obliged to curtail their purchase of imports.

With so many drawbacks to healthy commerce from the commencement to the end of the year, it is not surprising that the Customs revenue failed to maintain the advance made to the end of June and that the year ended with a collection smaller by *Hk.Tls.* 5,052,328 than in 1913. It was, however, larger than in any year previous to 1912, and the greater part of the decrease is accounted for by a loss in opium duty and likin amounting to *Hk.Tls.* 3,108,680, leaving only *Hk.Tls.* 1,943,648 (£265,227) as the reduced collection on general trade.

While the impossibility of obtaining money from abroad, in consequence of the outbreak of war, had the good effect of leading the Chinese Government to rely more upon the national resources, it unfortunately interfered very seriously with railway development. It has already been abundantly proved that railways are causing a rapid extension of trade, and it is much to be regretted that the completion of those under construction must now be delayed, so that the revival of trade after the war will not be facilitated by them until a later date.

A few remarks reviewing the general trend of trade will probably be of more interest than a detailed examination of what has occurred during a year of such abnormal conditions, and it may be useful to show in tabular form the value of the trade in silver and sterling from 1891 to 1914.

Value in Silver and Sterling of the Foreign Trade of China, 1891 to 1914.

Year.	Average Exchange.		Imports.		Exports.	
	s.	*d.*	*Hk.Tls.*	£	*Hk.Tls.*	£
1891	4	11	139,661,186	34,333,375	100,947,849	24,816,346
1892	4	$4\frac{1}{4}$	140,298,086	30,544,061	102,583,525	22,333,288
1893	3	$11\frac{1}{4}$	149,928,703	29,517,212	116,632,311	22,961,986
1894	3	$2\frac{3}{8}$	163,897,525	26,206,530	128,104,522	20,483,379
1895	3	$3\frac{1}{4}$	172,853,145	28,268,688	143,293,211	23,434,411
1896	3	4	209,106,866	34,851,143	131,081,421	21,846,903
1897	2	$11\frac{3}{4}$	204,554,227	30,470,055	163,501,358	24,354,889
1898	2	$10\frac{5}{8}$	217,761,975	31,416,701	159,037,149	22,944,422
1899*	3	$0\frac{1}{8}$	280,907,296	42,282,402	195,784,832	29,469,696
1900†	3	$1\frac{1}{4}$	223,791,888	34,734,365	158,996,752	24,677,621
1901	2	$11\frac{9}{16}$	280,472,693	41,559,625	169,656,757	25,139,243
1902	2	$7\frac{1}{5}$	335,601,739	43,628,226	214,181,584	27,843,605
1903	2	$7\frac{2}{3}$	343,300,115	45,296,542	214,352,467	28,282,616
1904	2	$10\frac{2}{5}$	348,603,090	49,966,442	239,486,683	34,326,424
1905	3	$0\frac{1}{10}$	358,340,485	68,942,047	227,888,197	34,378,183
1906	3	$3\frac{1}{2}$	414,184,061	68,167,793	236,456,739	38,916,838
1907	3	3	422,838,531	68,711,261	264,380,697	42,961,863
1908	2	8	396,261,991	52,834,932	276,660,403	36,888,053
1909	2	7 [illegible]/16	417,586,237	54,264,460	338,992,814	44,051,410
1910	2	$8\frac{5}{16}$	462,437,260	62,260,433	380,833,328	51,273,653
1911‡	2	$8\frac{1}{4}$	473,517,685	63,628,938	377,338,166	50,704,816
1912	3	$0\frac{5}{8}$	471,809,192	72,000,048	370,520,403	56,542,957
1913§	3	$0\frac{1}{4}$	570,064,611	86,103,508	403,305,546	60,915,941
1914‖	2	$8\frac{3}{4}$	546,425,295	74,564,285	345,280,874	47,116,453

* Influence of railways felt. ‡ Revolution in October. ‖ European war from August.
† Boxer outbreak. § Rebellion in summer.

It is interesting to observe in this table that an increase in silver values does not always mean an increase in trade when measured in sterling. For instance, it will be seen that an increase of 10 millions of taels in the value of imports between 1891 and 1893 showed a loss in sterling value of over 4 millions of pounds. By 1898 the silver value of imports had risen by 78 millions of taels, but the sterling value was still 3 millions of pounds less than in 1891. The same condition applies to exports, a rise of 58 millions in silver values between 1891 and 1898 showing a loss in sterling of 2 millions of pounds. In 1899 the influence on trade of railways began to be marked, and, with the exception of the set-back caused by

the Boxer outbreak, the values have never receded to the figures of the years previous to 1899. The sterling values of both imports and exports during 1913 were two and a half times the values of 1891, notwithstanding the disturbance to trade caused by the Revolution in 1911 and the rebellion of 1913. In silver values the trade, both imports and exports, was four times as much.

The table of imports is curiously illustrative of the conditions prevailing in the country and of what the trade really means. The Chinese are now, assuming the population to amount to 400 millions, purchasing foreign products to the value of about 3*s.* 9*d.* per head per annum. Of this not very extravagant expenditure about 1*s.* 3*d.* is spent on cotton goods, leaving 2*s.* 6*d.* to be judiciously laid out on necessaries, such as metals, coal, kerosene, matches, rice, and sugar, or on luxuries as birds' nests, cigarettes, opium, soap, and elephants' teeth. The tentative adoption of Western culture is to be traced in the importation of railway plant, electrical materials, telegraph and telephone appliances, machinery for various purposes, printing and lithographic materials, and paper; while the craving for personal adornment, not always wisely directed, finds satisfaction in the purchase of foreign hats, shoes, and clothing, haberdashery, hosiery, lace and trimmings, looking-glasses, perfumery and cosmetics, and aniline dyes. Houses of the wealthy are now made bright with window glass and kerosene lamps, furnished with clocks, enamelledware, and gramophones, and made beautiful with elegant drawing-room suites and radiant carpets. But for centuries the Chinese have found their own products sufficient for their needs, and the sluggish advance in the importation of foreign goods is due to the fact that a demand has to be generated by introducing novelties to potential purchasers and arousing their interests and widening their wants—a very slow process in a country where the means of communication are so defective. When, however, the Chinese are offered an article that fills a want and is easily disposed of, the demand for it increases by leaps and bounds. The table that follows will show what is meant, the blank spaces being understood to mean, not that there was no import, but that it had not attained sufficient importance to be separately recorded.

China's Imports, Showing Advance in Certain Items Since 1870

		1870.	1880.	1890.	1900.	1910.	1913.	1914.
Cotton Goods	*Value, Hk. Tls.*	22,037,717	23,382,957	45,020,302	75,606,360	130,682,634	182,419,023	178,259,04
Metals & Minerals	,, ,,	3,996,279	4,079,196	6,872,084	9,178,452	18,907,802	28,973,156	28,420,632
Candles	,, ,,	...	43,547	59,878	356,110	949,464	579,787	808,687
Cigarettes	,, ,,	...	...	16,690	1,011,653	6,902,246	12,589,300	13,321,616
Coal	*Tons*	78,405	214,421	306,027	864,158	1,443,896	1,690,892	1,600,954
Condensed Milk in tins	*Dozens*	...	...	37,283	112,194	325,397	483,720	522,584
Dyes, Aniline	*Value, Hk. Tls.*	...	...	889,619	1,696,628	2,718,438	5,401,820	3,250,305
Electrical Materials	,, ,,	...	...	17,091	118,216	1,387,267	2,322,339	2,726,394
Flour	,, ,,	17,535	140,990	775,548	3,329,868	3,444,407	10,300,612	9,150,310
Kerosene	*Galls.*	281,004	3,429,423	30,828,724	83,580,024	161,389,583	183,984,052	225,464,201
Leather	*Piculs*	412	3,673	7,716	14,815	59,926	109,295	91,056
Matches	*Gross*	119,393	1,419,540	4,146,895	9,274,108	24,727,231	28,448,155	20,408,313
Needles	*Mille*	463,473	1,933,944	2,286,748	2,813,980	5,117,586	4,929,710	2,466,182
Rice	*Piculs*	141,297	30,432	7,574,257	6,207,226	9,409,594	5,414,896	6,774,266
Soap	*Value, Hk. Tls.*	...	62,136	193,309	753,289	1,884,658	2,684,511	2,529,972
Sugar	*Piculs*	232,824	57,382	209,121	1,291,289	4,311,328	7,111,728	6,080,484
Timber	*Value, Hk. Tls.*	272,150	591,836	834,148	1,034,567	4,266,033	5,111,497	6,251,781

One very interesting point in this table is the proof it gives of the undeveloped state of the national resources. China grows cotton of excellent quality, but included in the cotton goods (in 1913) is cotton yarn to the value of *Tls.* 71,060,089. The next article to notice is coal, of which the Chinese import more and more, although they have an inexhaustible supply in their own deposits. There should be no need to import flour or rice, and a large proportion of the timber imported, three-fourths of it being softwood, could be grown in the country if deforestation were checked. It will be seen that the increase in the quantities of metals imported gives no indication of progress in mining development. Another point worth noticing is that cotton yarn, cigarettes, matches, candles and soap are now being largely manufactured in China, without in the least affecting the importation. For the Chinese market the first essential is cheapness, and the Japanese have an advantage over their Western competitors in already producing for home consumption articles of a type and quality suited to the pockets and needs of their neighbours. Among such goods may be mentioned knitted undergarments, both of summer and winter weights, brown for men and pink for women being preferred to white. Stockings and socks are in increasing demand, but must be low in price, while cotton umbrellas are taken in large numbers. Other articles that command a ready sale are looking-glasses, spectacles, bottles, thread, buttons, tooth brushes, handbags and purses, india-rubber balls as toys, ankle-binding tapes of either cotton or silk, enamelled ironware, hair clippers, clocks and watches, crockery, etc. Where water carriage is available transportation is inexpensive, but away from the waterways it becomes costly and very slow, except along the few railway routes. Consequently no marked increase in imports is to be looked for, as was remarked above in the case of exports, except in conjunction with railway development.

The following particulars regarding the trade during 1914 are founded upon the quarterly memoranda on trade received from the ports.

In Manchuria trade was fairly satisfactory, notwithstanding a rainy season of abnormal length and floods that caused considerable damage; but the export of cereals to Korea was less than usual, owing to excellent crops in that country, while the war interfered with the demand for wild silk. The crop of beans was abundant and the export improved. A new article for export was found in talc, of which large quantities are produced near Haicheng and which is said to be of good quality; during the year 3,600 tons were sent away from Dairen. Cement also, to the amount of 60,000 tons, was shipped to Java, and further shipments were to be made. At the instance of the Japanese and Chosen (Korean) Railways, a reduction of freight of 30 per cent, on 11 kinds of through cargo carried by the Antung-Moukden line, including cotton piece goods and yarn, was inaugurated by the South Manchuria Railway on the 1st May. A similar reduction, in favour of steamer-borne cargo, was extended to the same goods when carried by the Dairen-Moukden and Newchwang-Moukden lines. Leading Japanese exporters of cotton goods to Manchuria have organised a Japanese Cotton Exporters Association, the declared object of the Association being to enhance the reputation of Japanese cotton goods in Manchurian markets by stopping the export of goods of inferior quality and to maintain standard prices. These factors, combined with the Agreement of the 29th May, 1913, under which dutiable goods imported into Manchuria from or through Chosen, and exported from Manchuria to or through Chosen, by rail *via* Antung, are allowed a rebate of one-third of the tariff duty, have had a marked influence in encouraging the trade in Japanese cotton goods at the expense of British and American manufactures.

At Tientsin the year opened with apparently bright prospects, and it was noticed that British and American piece goods were making headway against Japanese competition, probably assisted by a high and steady exchange. Under the heading of cotton yarn the Indian variety showed a larger *pro rata* increase than the Japanese; but after the middle of the year this state of affairs was completely reversed. Shirtings, sheetings, and drills from England and America all fell off, while Japanese drills and *T*-cloths came forward in large quantities. Japan matches and machinery also showed large increases. The export trade was fairly satisfactory, but was impeded for a time by the unrest in Mongolia. Production was good, but the war closed certain markets and at first exports fell off seriously. After the reduction of Tsingtau trade revived surprisingly. At Chefoo, also, a prosperous year was anticipated, but, except for a brisk business in Japanese cottons and matches, the trade became very stagnant.

The Yangtze was unusually low during the summer, and this meant a great advantage to farmers along the banks, as an enormous acreage generally submerged was available for cultivation. Generally speaking, the crops along the valley were good, and, so far as climatic conditions were concerned, the year should have been one of brisk trade. But in Szechwan the roads were made unsafe by roaming bands of robbers, preventing the free transit of goods and compelling senders of silver to provide an escort. The silk crop in Szechwan was particularly good and prices were high early in the year, but the war stopped demand and many dealers were ruined. Chinese-milled flour, and Chinese-made cotton piece goods and matches entered more into competition with imported goods, and a development in this direction is to be looked for. In Wusih the silk crop was disappointing, and cocoons fetched abnormal prices. The cotton crop was excellent, and low prices assisted the local mills.

Turning to the more southern ports, it appears that rice was plentiful and cheap. The European war, by sending up prices, caused consumers of Western manufactures to give up, wherever possible, the use of such goods—an opening that the Japanese were not slow to take advantage of. Japanese kerosene from Formosa made its appearance for the first time. Mr. R. J. White, of the Canton Customs, gives some interesting particulars of the rise in the prices of imports and the fall in the prices of exports since the commencement of hostilities in Europe. Among imports, paper rose from 40 to 60 per cent.; aniline dyes, from 60 to 100 per cent.;

sugar, 50 per cent.; matches (in consequence of the shortage in German materials, chlorate of potash, and phosphorus), 60 per cent.; sundries, from 10 to 15 per cent. Among exports, silk fell $200 per picul; waste silk, about 25 per cent.; bristles, about 20 per cent.; hides, 15 per cent. There was no demand for human hair, and very little for matting and cassia. As regards the fall in the value of silk, a brisk demand from America towards the end of the year brought about a certain recovery. The country around Canton was much disturbed by brigandage and piracy. The floods caused by the West River, which rose 38 feet in 48 hours and in the course of five days rose from 18 to 72 feet, resulted in immense damage and distress, and the closing of certain of the European markets, sent down prices and checked exports.

Drought Checks Imports

At the frontier ports trade was quite satisfactory until the autumn, when a prolonged drought affected the rice crop and sent up the price from $4.80 to $12 per picul. The export of tin, one of the principal products, was checked by low prices during most of the year. A report from Tengyueh makes out a strong case for the construction of a railway from Bhamo to serve the transfrontier trade, which has increased of late to a surprising extent.

The value of the direct foreign trade was *Hk. Tls.* 902,389,922, a falling off of *Hk. Tls.* 71,078,181 as compared with the value of 1913, but exceeding that of all previous years. Net foreign imports decreased by *Hk. Tls.* 13,053,-509 only, but exports showed a decline of *Hk. Tls.* 58,024,672.

The net quantity of opium imported, that is, released from bond for consumption after payment of duty and likin, was 7,478 piculs, as against 18,138 piculs in 1913. The latter quantity was valued at *Hk. Tls.* 41,023,012, and the reduction in consumption to less than a half did not result in much saving, as the value of the smaller amount was estimated at *Hk. Tls.* 37,344,653, prices having risen considerably towards the end of 1913 and having remained steady throughout 1914. The year opened with 14,529 chests in bond and in Hongkong, which it was expected would, including duty-paid stock in the hands of dealers, be all disposed of during the year, assuming that the demand would continue at the same rate. But the increased severity of the Government restrictions on smoking reduced the consumption to about one-half, and the year closed with 5,381 2/3 chests in bond in China, 1,917 chests in Hongkong, and 18 chests afloat between Shanghai and Hongkong. When this stock is exhausted the trade in Indian opium will be a thing of the past. Enormous prices now are paid, and it is interesting to note, as a comparison, that in 1906 an importation of 54,225 piculs was valued at *Hk. Tls.* 32,285,377, which shows that the limitation of supplies has raised the price of the drug more than eightfold. During the year Fukien, Honan, Hupeh, and Chekiang were added to the provinces into which, as being free from poppy cultivation, the importation of foreign and Chinese opium is forbidden under the Anglo-Chinese Opium Agreement of 1911.

American Cottons Decrease

The value of cotton goods imported fell from *Hk. Tls.* 182,419,023 to *Hk. Tls.* 178,-259,045, that is, taking the average rates of exchange for 1913 and 1914, from £27,552,873 to £24,324,932. The year was a bad one for this trade and commenced with prices that were below the cost of replacement, but a fairly high exchange made importers hopeful of improvement in conditions. Unfortunately, stocks were heavy and restriction of credit by the Chinese banks placed great difficulties in the way of the dealers. With the approach of the Chinese New Year, however, the demand became imperative and a very brisk business set in. There was considerable development in the local cotton industry, almost all the mills having largely added to the number of their spindles, and there can be no doubt that both yarn and cotton piece goods will, in the future, feel more and more the competition of Chinese manufactures. A very significant feature of the cotton trade during the year was the large advance made in certain classes of Japanese goods at the expense of similar makes from America and Great Britain. In grey sheetings, for instance, while Japanese rose from 3,397,362 to 4,499,433 pieces, American fell from 1,668,716 to 870,200 pieces; Japanese drills rose from 1,677,111 to 2,190,155 pieces, while American fell from 525,291 to 145,719 pieces and English from 85,708 to 45,671 pieces. Japanese yarn has now reached 1,331,739 piculs, which was 194,515 piculs more than Indian yarn.

Woollen goods fell off about 32 per cent., and it is quite evident that the Chinese have not yet decided to discard their own comfortable and suitable style of dress and to follow foreign fashions.

Metals remained about the same as in 1913.

Among sundries, the effect of the European war was shown in a reduced importation of various articles from the Continent. Aniline dyes fell from *Hk. Tls.* 5,401,820 to *Hk. Tls.* 3,250,305; artificial indigo, from 319,575 to 250,127 piculs, a difference in value of a million taels; window glass, which mostly comes from Belgium, more than doubled in price, and the importation fell from 311,950 to 253,168 boxes. Only about half the quantity of needles, as compared with 1913, arrived. American kerosene oil made a further advance, from 112,459,925 to 160,428,389 gallons, and the new Japanese product, which is cheaper but inferior, rose from 34,265 to 514,470 gallons. Russian and Sumatra oil remained about the same. All classes of sugar felt the effects of the war and were imported in smaller quantities on account of the increased demand in foreign markets, caused by the shortage in beet sugar, which sent up prices. Brown sugar fell from 2,277,593 to 1,786,671 piculs; white sugar, from 1,933,067 to 1,628,211 piculs; refined, from 2,627,907 to 2,487,654 piculs; and sugar candy, from 273,161 to 177,948 piculs. The Iloilo sugar is said to be increasing in favour, as it resists best the effects of heat.

Silk Suffers Severely

One of the first exports to feel the effect of the war, and the one that was most severely affected, was silk. During the first half of the year exports of silk had been fairly satisfactory, though not particularly brisk. With the opening of the new season the prices of cocoons in the districts serving Shanghai became abnormally high. With the outbreak of war all exports ceased, and most of the filatures had to stop work from want of capital. Foreign merchants were in some cases unable to take up their contracts, as it was impossible to finance shipments. The same conditions prevailed in Canton, where prices fell from $700 or $800 to $200 in August, but recovered later. The Bank of China and the Bank of Communications assisted traders by making large advances. From October onwards there commenced a demand from America, as well as inquiries from London and the Continent, which caused some improvement; but at the close of the year the market was still very dull. The values of silk and silk products exported fell from *Hk. Tls.* 104,852,141 in 1913 to *Hk. Tls.* 79,561,667—a loss to China's trade of nearly 3½ millions of pounds sterling.

The tea trade was practically finished before the war commenced and was not affected as were other exports. Black tea improved by 9,492,000 pounds, but there was a somewhat smaller quantity of green tea exported. The demand from the United States and Canada was larger, and Europe took more black tea than in 1913, but required less green tea. Although there was this small increase in the quantity of black tea exported, the export was below that of any previous year except 1913, 1905, and 1906; and it is quite evident that the bulk of this trade, by which is meant all of it with the exception of a small portion represented by the finer qualities, demands the careful consideration of the Government. This has been to some extent realised, and the export duty on leaf tea was reduced from *Hk. Tls.* 1.25 to *Hk. Tls.* 1 from the 1st November. But this reduction will do nothing to help the finer teas and leaves the duty upon the inferior qualities, of which by far the greater proportion of the trade consists, much too high, when taken in conjunction with the likin, to enable them to compete under ordinary conditions with the duty-free teas from India and Ceylon, the trade having for many years declined to the position that the inferior China teas are wanted only when short supplies from India and Ceylon have so raised prices that China teas are worth buying on account of their cheapness. The export of brick tea did not maintain the advance made in 1913. Black brick fell off by 84,038 piculs, and the total export declined by 22,137 piculs notwithstanding an advance of green brick of 61,901 piculs.

Antimony in Strong Demand

Later in the year the demand for antimony became very strong, and the price of crude antimony rose from *Hk. Tls.* 150 per ton to *Hk. Tls.* 240, and the supply was insufficient to meet the demand. The export of iron ore increased by 420,000 piculs, but pig iron showed a small decline.

The export of beans, in spite of a temporary stoppage when war was declared, and in spite of the destruction of the crops by floods in the districts serving Chinkiang, actually showed a small increase, rising from 10,323,959 to 11,157,147 piculs. Oils, principally required for the Continent, such as groundnut oil and wood oil, felt the effects of the war; but bean oil, cotton seed oil, sesamum seed oil, and tea oil all improved in quantity. Among seeds while cotton seed and rape seed showed a decided advance, there was a falling off in linseed and especially in sesamum seed, which receded from 2,034,647 to 1,251,180 piculs, although there was a large supply offering. Hides, of course, show reduced figures, as do skins, except that dressed sheep skins were purchased in large quantities. Straw braid fell from 101,037 to 16,648 piculs, a very serious decline, partly due to the absence of statistics from Kiaochow and partly due, it is said, to a change of fashion in Western countries. The total decrease in the value of the export trade amounted to about 14 millions of pounds sterling.

Although the tonnage recorded under Austrian and German flags represents little more than the first half of the year, while British, French and Russian tonnage was largely employed on Government work from the same date, and vessels under neutral flags found plenty of profitable business elsewhere, it will be seen that steamer tonnage increased by 1,855,913 tons and exceeded the record for all other years, rising from 87,613,969 tons in 1913 to 89,469,882 tons. American, British, Danish, Japanese, Norwegian, Portuguese, Russian, and Chinese tonnage all shared in the increase. There was great difficulty in finding accommodation for cargo offering both in Europe and in China, and the consequent rise in freights and the expense of war risks did not tend to encourage trade.

Much Gold Exported

The demand for gold in Europe and Japan and its dearness as compared with silver led to the sale of the former metal by China, and there was an excess of exports over imports of *Hk. Tls.* 13,000,750, the bulk of the shipments having taken place after the commencement of the war. That gold valued at *Hk. Tls.* 4,307,531 was sent to America, where the price was attractive, is partly to be explained by the fact that there was no possibility of remitting to Germany by bills

of exchange after the stoppage of German trade. The most convenient way, therefore, of remitting such funds as those required for the service of loans and the Boxer Indemnity was to ship gold to a neutral country where credits could be arranged. Japan took *Hk. Tls.* 6,198,061, some of which was said to be also destined for America. To Europe there was an export to the value of *Hk. Tls.* 2,704,447. There is always a small export of gold from China, and the larger export during 1914 was merely due to exceptional circumstances and was not brought about by the necessity of adjusting the balance of trade.

Regarding the balance of trade it has been customary to give certain estimates of liabilities and assets, intended to show how the excess of imports over exports is paid for. This has been done because among the Chinese, including even the editors of certain newspapers, there are those who profess to believe that commerce with foreign nations is ruining their country and draining it of silver; and in proof of it they point to the fact that for many years the balance of trade has, as shown by the Customs statistics, been against China. It may cause such persons a shock to see that an adverse balance of 103 million Haikwan taels in 1912 and of 167 million Haikwan taels in 1913 have now been followed by one of 212 million Haikwan taels. The plausible conclusion is that silver must be flowing out of the country to pay for the excess of imports. But when the recorded movements of silver for these three years are examined, it is found that the net import of silver, that is, the excess of imports over exports, has amounted to *Hk. Tls.* 41,594,067, while the stocks of silver in the local banks are so large that they cannot be made use of. Hongkong has also to be taken into consideration. There are no official figures available, but, so far as is known, in 1914 the imports of gold exceeded the exports by nearly 6 million dollars, while the imports of silver exceeded the exports by over 1 million dollars. These facts make it quite clear that the balance of trade is not adjusted by the export of treasure, and justify the statement made by Mr. Morse in 1905 that China's liabilities are balanced by the assets.

What these assets amount to can only be very roughly estimated, but it is evident that they are sufficient. Among them may be mentioned remittances from and money brought in by Chinese emigrants; money expended by foreign Governments for the maintenance of garrisons and warships, including the sums spent by the men; expenditure on foreign Legations and Consulates in China; expenditure on foreign missions, hospitals, schools, etc.; expenditure on the maintenance of foreign merchant vessels and on repairs to the same; expenditure by foreign travellers; excess of exports over imports in the unrecorded trade across the land frontiers; and so on. There is, moreover, reason to think that the Customs valuation of exports is generally too low. Finally, it may be pointed out that the result of intercourse with foreign nations has led to a large industrial development that is increasing every year, and that China now possesses not only railways and mines, but cotton mills, albumen factories, cement and brick works, chemical works, distilleries, docks, shipbuilding and engineering works, electric light works, flour mills, match factories, oil mills, paper mills, sawmills, silk filatures, smelting works, soap and candle factories, and many other industrial establishments. So far from foreign trade impoverishing the country, China is growing richer every year in consequence of the development of her resources—a development that will progress with rapid strides with the expansion of the railway system, the establishment of a standard currency, and the abolition of taxation on goods in transit.

A New Mechanical Filter

For many years Messrs. Mather & Platt, Ltd., have been engaged in the construction and installation of large sized pressure filters for public or industrial purposes, and the firm is responsible for some of the largest plants for the filtration and purification of water at home and abroad. With the view of meeting the requirements of comparatively small users, Messrs. Mather & Platt have now placed on the market a new type of filter specially designed to fulfil the conditions met with in water supply of Public Institutions, Country Mansions, Tea and Rubber Estates, etc., where a cheap and efficient plant for the purification of the water supply is just as much a necessity as in the case of Municipalities and large works.

The new filter is constructed on the mechanical principle which has achieved such satisfactory results in the larger sizes. The old fashioned method of purifying water was by means of sand beds. The passing of water through a bed of sand is, however, not in itself effective for intercepting and destroying bacteria. This is accomplished in the case of open sand filters by allowing the water to run for a considerable period, forming a natural gelatinous film on the surface of the bed. With mechanical filters this film is formed by the addition of a solution which coagulates the fine particles in the water. Messrs. Mather & Platt have recently patented an apparatus for passing into the water supply an exact percentage of the required coagulant, the percentage remaining the same irrespective of the quantity of water passing through the apparatus.

In the new filter the water enters at the top and after percolating through the filtering media, passes through the nozzles into the cast-iron base, and is delivered through the clean water pipe and valve. A special feature is the design and arrangement of nozzles which are fitted into the base. They are made of phosphor bronze with copper perforated domes, and give even distribution over the whole bed both when filtering and during the washing operation. They are screwed in from the underside, access doors being provided so that any nozzles may be taken out, examined and replaced without disturbing the filtering medium.

For supplying the coagulating solution, a small copper tank is provided which normally holds one day's supply; this tank is secured to the pipes as an integral part of the filter. It is fitted with special valves, a sight glass and

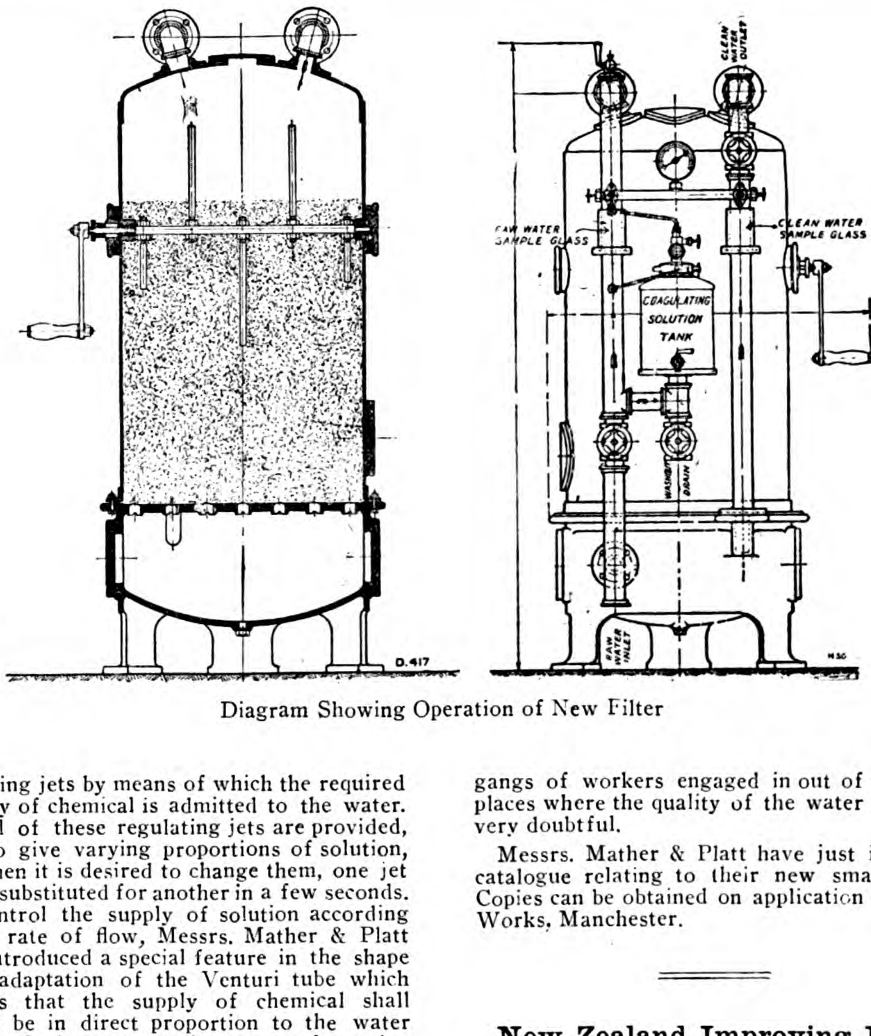


Diagram Showing Operation of New Filter

regulating jets by means of which the required quantity of chemical is admitted to the water. Several of these regulating jets are provided, each to give varying proportions of solution, and when it is desired to change them, one jet can be substituted for another in a few seconds. To control the supply of solution according to the rate of flow, Messrs. Mather & Platt have introduced a special feature in the shape of an adaptation of the Venturi tube which ensures that the supply of chemical shall always be in direct proportion to the water supply. It has no moving parts, the action being purely a hydraulic one and absolutely positive.

The new filter is complete and self-contained. It can be readily transported and erected in any convenient position without special foundations or specially skilled labour. It can be mounted on a motor waggon or other vehicle and, connected to a pump driven off the main engine, enables pure water to be instantly attainable at any time or place where there is a water supply. It is obvious that this would be a great advantage to troops and gangs of workers engaged in out of the way places where the quality of the water is often very doubtful.

Messrs. Mather & Platt have just issued a catalogue relating to their new small filter. Copies can be obtained on application to Park Works, Manchester.

New Zealand Improving Patea

The Marine Department of New Zealand has approved plans for the improvement of the port of Patea, for which a loan of £86,000, secured by the Patea Harbour Board, has been issued. Tenders are now being invited for the extensions of the existing breakwater in concrete, on the "pierre perdue" system. The contract time to complete the works is four and a half years, and it is estimated that the extension will result in an increase of 50 per cent. in the trade of the port.

Village Industries.

We suppose there is not a reader of this "Review" who does not know something about small industries which have been cultivated in certain countries and agricultural districts, having ministered very considerably to the success and progress of the country in which they have been located. Especially is this the case in the Continent of Europe. All Political Economists of latter days have taught the advantages, morally, physically, and materially, of combining agriculture and some small industry so that a diversity of occupation might be enjoyed by the population and the tendency to monotony, which frequently drags on the vocation of the person compelled year in and year out, to keep his nose down to one grind stone, whether that grind stone be following the plough, or digging the soil, or whether it be shoe-making or toy-making. Now it has been proved, beyond doubt, that this welding together of little industries with farming has brought joy and success to whole nations.

It is, of course, impossible to carry certain industries on successfully on a very small scale, but there are still, without doubt, very many trades which could be well conducted to occupy the spare time of the farmer in bad weather and in slack time between the seasons, which would help him to make a little extra money, and in which trade he could well compete with the largest and best equipped factories, however extensive their scale.

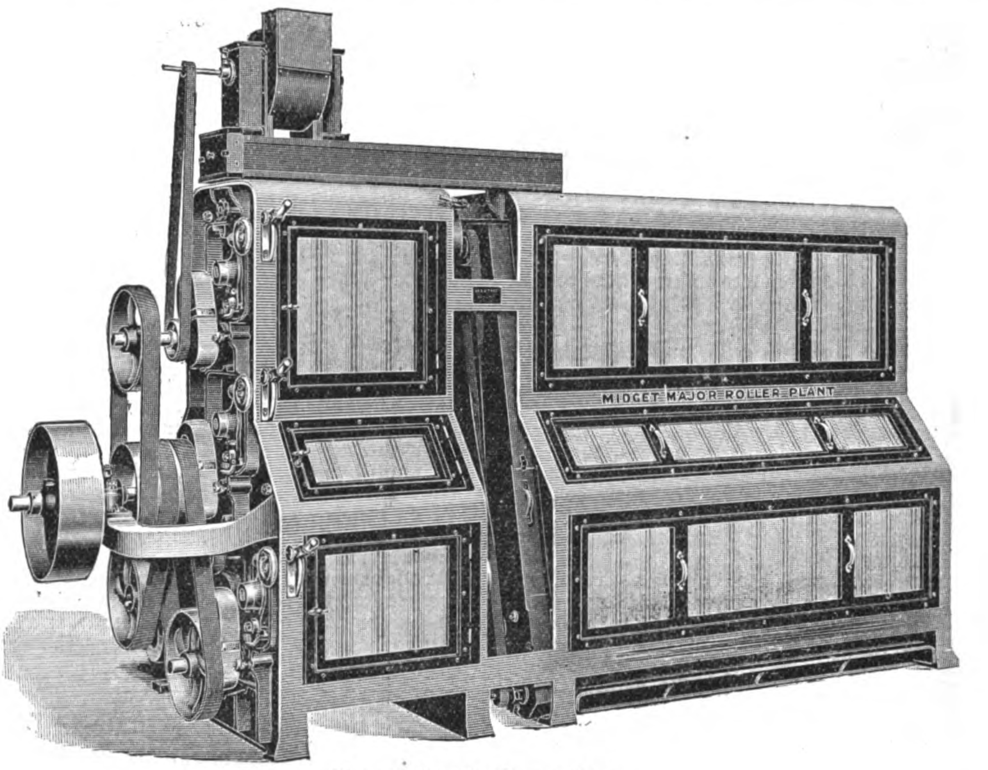
Now it is obvious that the industry most closely associated with agriculture, from time immemorial, has been that of grinding the grain grown on the land. Instances of this dual occupation have been burnished from the most ancient records and it is quite safe to assert that no industry is of greater advantage to a community occupied for the most part with cultivating the soil, than that of the miller.

The process of reducing grain to meal or flour is the most ancient process of manufacture known, and while primitive methods consisting of the most simple utensils, have done very well in ages gone by, the time is coming when the education and the condition of the people calls for greater refinement of food than can possibly be produced by the old style of grinding between the upper and the nether mill stones. Whatever doctors may think about the advantage of grinding some of the bran or husks of the wheat to be mixed with flour, which is an inevitable result of stone grinding, there is unquestionably a growing taste for purer and whiter flour, such as it is possible to produce from the same wheat by means of modern systems, consisting of grinding the wheat in successive stages through a series of steel rollers, so as to produce a more palatable and tasty bread than can be made on the old fashioned process.

Whether we like it or not, the world does not stand still; times change. Improvements are impressed upon us at every turning, and those improvements which relate to the refinement in food products, are inevitably bound to influence mankind most forcibly. The importation of refined flour made from wheat which is creeping into far Eastern life has given even the poor people a taste for better bread than their fathers were accustomed to eat, and if the land proprietor, the storekeeper and the small village miller is going to consider best his own interests for the future, he must provide ways and means for getting the highest commercial value for the wheat grown in his district. Now the spirit of progress and development is spreading rapidly through the countries in which this "Review" circulates, and the time is not far distant when the bulk of the wheat bread consumed must be made of white flour.

The roller flour milling process had its origin, strange to say, in Hungary about the middle of the last century, but it was not until 1875 that it made any serious headway throughout the countries of Europe or in America, but since that time, only a period of say 40 years, has been long enough to completely change the system of milling from stones to rollers in the countries named. It would be safe to say that not more than 5% of the wheat in those countries is now ground on anything but a roller process, and this has been done chiefly in large centres where mills have been of a large capacity. Not until about 1900 was the problem of the small miller in relation to the new process fully met by the introduction of a single machine, which, in itself, was capable of performing the whole of the operations of grinding and sifting by gradual stages in one complete frame, and driven by one belt. This machine has been named the "Midget" because of its small size in comparison with the large installations, and it has met with remarkable success in Europe and America. It had its origin in a small village mill in England. It was invented by a miller's son, and has been developed to such perfection during the last 10 years that it is now stated to be so simple in operation and so free from trouble that the uninitiated can work it without previous training. Over 500 of these mills are now at work, and we predict for the machine a ready sale in the Far East when once it gets a footing. The claims made for the machine are as follows:—that from the same wheat as used in the largest and most elaborate mills, it will produce as good flour and as much of it, and it takes less power and is, therefore, a most profitable machine to use. Wherever, therefore, wheat is grown and flour is required for human consumption, this compact little mill is worth all attention. It can be placed on any floor and driven with any kind of power, gas, oil, electricity or water. The wheat is first cleaned on a separate machine, and is then fed into the top of the "Midget" Mill, and the finished products—flour, bran, etc.,—come off into separate sacks beneath the mill, and are ready for the market. The machine is guaranteed to run for many years without any serious cost of maintenance, and as the principal bearings in it are self-oiling it runs very lightly and takes a minimum of power.

The Agents for this mill in Shanghai are Messrs. Wm. Kay & Co., of 9 Kiukiang Road, Shanghai, who will be glad to give any possible information with regard to this novel machine, and any readers in remote districts who are looking for information would be well advised to address the original makers, who are Messrs. A. R. Tattersall & Co., of 75D Mark Lane, London, E.C.



Midget Roller Flour Mill

Purity and Its Relation to Permanence in Metals

By L. E. Kittle.

It is a fact long established in the scientific world that pure metals resist the actions of acids to a much greater extent than those which contain foreign substances. The action of solvents seems to be decidedly hastened by the presence of impurities which, even when not of such a nature as to directly promote dissolution, undoubtedly exert an indirect influence by lessening homogeneity and consequent cohesion.

One railroad system in the Orient has recently had a very unsatisfactory experience of copper. The specifications under which the material was bought did not touch upon the chemical analysis of the metal and the result was that copper was furnished which was very far from pure. When exposed to the weather in actual service it very rapidly deteriorated and the whole shipment failed utterly to give anything like the service life which is expected from this comparatively high priced metal.

The discovery of the relation of purity to permanence in metals is of the greatest importance in respect to iron and steel. Iron moves the world in our day. The value of iron and steel products exceeds by hundreds of times that of all other metals and the bringing to light of the fact that iron resists corrosion in proportion to its freedom from foreign substances will no doubt take rank with the foremost triumphs of science and invention.

The attention of metallurgists was drawn to this problem by noting the tremendous difference between the durability of the iron of one hundred and more years ago and the products of modern Bessemer and Open Hearth Furnaces. Chemical analyses of hundreds of samples of the old and durable irons and of modern rapidly-rusting steels disclosed the fact that the latter had nearly always a high content of impurities, especially manganese, copper, and sulphur, whereas the products of our grandfathers' time were very nearly pure iron.

The amount of impurity contained in ordinary steel is so seemingly slight compared with its whole mass that to the untechnical mind

even its practical elimination appears an inadequate reason for a great difference in resistance to corrosion; but we have to remember that in the field of chemistry, as in many another, great effects sometimes ensue from small causes. A very little kerosene will impart a distinct flavor to a considerable quantity of water.

Since the beginning of the present century, adaptations and improvements in the methods of the basic open hearth furnace have enabled the production of iron of an even higher degree of purity than that of a century ago. Experience with this material in the form of corrugated road culverts, roofing, sheet metal work, wire fencing, etc., seems strongly to bear out the claims made for modern pure iron. Of course, no such long time service records are as yet available, as for the old fashioned material. But the use of high purity iron in place of steel for a number of special purposes, where the corrosive conditions are so severe that ordinary iron and steel endure for only a few months, has established a comparative length of service for the high purity iron two to four times greater.

The original experimenters in the manufacture of pure iron in basic open hearth furnaces were the makers of the material known as Armco Iron; and this is to-day probably the best example of modern accomplishment in this direction. Manganese, Sulphur, Copper and Carbon, as well as other solid and gaseous impurities are reduced almost to the vanishing point. The evil effects of included gases (which are not shown by chemical analysis) have been practically demonstrated, and great care is exercised in eliminating them. Measures for the production of sound ingots, free from gas inclusions, and which will result in dense and solid metal, include the use of an ingot splitting saw for laying bare to inspection the interior of any ingots suspected of blow-holes or of a "gassy" condition, and any heats in which this is found are rejected. Further investigations, however, lead to the conclusion that high purity, while immensely important, is not by any means the only quality to be considered in relation to rust-resistance. Perfect physical evenness is almost, if not quite, as desirable. In fact, the deepest students of the corrosion problem at the present time are substantially agreed that the basis of rust-resistance is *homogeneity;* and this implies not only the nearest possible approach to one substance, chemically considered, but also the absence of uneven crystallization and of the strains induced in the metal by rapid and careless methods of manufacture.

Asiatic Institute First Pacific Conference

July 19-20, 1915, the Asiatic Institute will hold a conference at San Francisco in connection with the Panama-Pacific Exposition. The object of the Conference is the consideration of conditions in the Pacific with a view to determining the basis for a Congress of the Pacific to be held at a time when the issues of the European War as they affect the Pacific Basin will have been determined.

The object aimed at by the Institute is that of determining what are the common interests of the countries of the two civilizations of the Pacific which can be advanced by mutual consideration and cooperation.

The sessions of July 19th will be held as a memorial to Henry Willard Denison, late adviser to the Japanese Foreign Office. The subject will be: "The Pacific as the Theatre of Two Civilizations." The principal topics considered will be Exclusion—called the Asiatic Question; Conflict of European nations in the Pacific; Ownership and Exploitation of Pacific regions, and Asiatic-American Relations.

The sessions of July 20 will be held as a memorial to William Woodville Rockhill, late adviser to the President of China. The subject for these sessions will be: "The Pacific as the Theatre of the World's Great Hereafter." The principal topics considered will be: Conditions on which future peace in the Pacific may be secured; National policies in the Pacific; Armament and Military in the Pacific and the Necessities of Humanity in the Pacific.

Those who participate in the discussions will be not only eminent speakers, but persons acquainted with the subjects.

The Duty of Directors and Shareholders

Sir William Mather, Chairman, presided at the Annual Meeting of Mather & Platt, Ltd., on Friday, February 26th, at the Company's Works, Manchester.

Comparing the results of the business during 1914 he said that in his opinion they were very satisfactory. A dividend of 10% on the Ordinary shares plus a bonus of 2½% free of income tax had been declared. In arriving at their statement of profit during the past year the Directors had thought it prudent to first secure the business against unforeseen contingencies that might arise in consequence of the unprecedented situation created by the sudden change from long years of universal peace to that of war on a colossal scale. They, therefore, decided not to add to the already large reserve fund but to carry forward a larger sum than ever before—£66,838. The Directors did not anticipate a revival of active business with the countries engaged in war to any great extent during the war. The firm had contracts booked with such countries but would be unable to execute them until after the war. Meantime their Works were fairly well employed and they had undertaken certain contracts which the Government placed with well-equipped firms.

It was a popular delusion that Government contracts were exceedingly profitable. Such contracts had to be completed under tremendous pressure, and it was the duty of contractors on patriotic grounds to make every effort, regardless of cost, to supply the Government with what they needed. And by strain and stress and all possible overtime the work had to be done to meet the demands. Another consideration which would affect the profits of most industrial concerns during the war was the indisputable fact that the cost of food had risen and might still rise to a price that would sensibly affect the workpeople of the country by seriously diminishing the purchasing value of wages. This was a grave question which employers and all concerned with industrial undertakings should meet sympathetically and patriotically with the desire to lighten the burdens of their workpeople. The working classes, being most numerous, furnished most of the fighting men. Their families would feel most acutely the pinch of excessively dear food. It was not right to ask sacrifices of them for the common weal greater than those which all other classes made according to their means. Charitable relief of the working classes was least effective and most demoralising. The greatest help that could be given to workpeople was to provide them with work at a living wage, adjusted to the cost of living frugally and carefully with self-denial and self-restraint on their part during the war. It seemed to him that company directors and shareholders should frankly face the facts affecting the people's food supply. Large dividends during war times should not be a primary consideration with them. They should first try to provide as much work as possible at wages that would enable workmen to reasonably nourish themselves and their families, having due regard to the avoidance of waste and self-indulgence. Business profits earned under the principles might be small, but shareholders ought to bear the sacrifice of part of their dividends as their contribution towards the relief of the universal suffering which the war had caused. Strenuous efforts should be made to keep the industries of the country alive during the war. Violent trade disputes on account of wages amounted to high treason at such a time. The War would pass all the sooner if those concerned in the industries of the country held well together, and after the war a long, lasting peace, with great prosperity, would repay them for the sacrifices they had now to make in order to secure the victory.

Japanese Rubber Planters

Japanese rubber plantations in the Malay Peninsula, says the Chugai Shogyo, have developed considerably, over 100,000 acres now being in Japanese hands. Taking the cost of plantation at Y250 per acre this would represent a total capital of Y25,000,000, but the actual amount invested is no more than Y6,000,000, on which very satisfactory returns have been made. The outbreak of war brought about some financial disturbance, with a decline in the rubber market, but the military demands have brought about a rapid recovery, and rubber is so much wanted now that its export has been prohibited in England, and the Japanese planters in Malaya are looking for capital to increase their plantations. Japanese capitalists, however, are not snatching eagerly at the bait, and it is believed that some sort of official encouragement will have to be forthcoming.

New Canadian Steamship Co.

The Canadian Pacific Ocean Services, Ltd., has been registered with a nominal capital of £2,000,000 in £10 shares. The objects are: To design, lay out, build, purchase, charter, sub-charter, lease, hire, take in exchange or otherwise acquire, hold, own, improve, maintain, operate, let out on hire, by charter or otherwise, sell or dispose of ships, tugs, barges, scows, vessels, tenders, lighters and craft of every description, whether propelled by sails or by steam or other power, to employ the company's vessels in conveyance of passengers, mails, troops, munitions of war, freight, live and dead stock, coal, minerals, treasure, produce and goods and merchandise of every kind, to acquire any postal or other subsidies, to enter into mail and other contracts, to carry on the business of ship and loading brokers, managers of shipping property, ship-chandler, tourists, forwarding and general agents, etc. The first directors (to number not less than three nor more than seven) are: Isaac G. Ogden, 157 MacKay Street, Montreal, vice-president of C.P.R.; George M. Bosworth, the Lenton, Sherbrook Street, Montreal, vice-president of C. P. R.; Edward W. Beatty, 222 Sherbrook Street West, Montreal, vice-president of C. P. R.; Frederick E. Meredith, K.C. 183 Mansfield Street, Montreal; David McNicoll, 2 Forden Avenue, West Mount, Quebec, railway official; H. Maitland Kersey, 8 Waterloo Place, S.W., manager-in-chief Ocean Services. C. P. R., and Sir Thomas Skinner, Bart., Gresham House, E.C., director of C. P. R. directors' qualification, 100 shares; remuneration as fixed by the company.

Japanese to Start Bank in China

The headquarters of the Japanese army at Tsingtau has given sanction to the application from the Tokyo businessmen for the establishment of a bank in Tsingtau with a capital of 5,000,000 taels. The bank, it is said, will be called the Japan-China Bank.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS AND SHIPPING

Chefoo-Weihsien Railway—A telegram from Chefoo to the Japanese press states that the Chinese Government has given permission for the proposed construction of the Chefoo-Weihsien Railway as a semi-Government enterprise, allowing private capitalists to invest therein, instead of as a purely Government venture. The Chinese Guild in Chefoo is holding conferences of its leading members.

Gift to Shareholders—The directors of the Nippon Yusen Kaisha have decided to double the company's capital of 22,000,000 yen by letting the present shareholders of the company take up all the new shares, one new share for each old one. The first instalment of each share, or 12.50 yen, is to be paid out of the reserve fund.

The directors also decided to pay each shareholder 6.50 yen in cash per share as a gift on the thirtieth anniversary of the establishment of the company. This cash distribution is strongly opposed by the authorities who declare that they will not sanction it. Minister of Communications Taketomi is reported to be denouncing the distribution of cash. He even declares that if the authorities of the Company in face of his opposition dare to adopt the plan, he will decrease the state subsidy.

O. S. K. Prosperous—The Osaka Shosen Kaisha has been doing a tremendous business since the beginning of war, and the profit for the first half of 1915 shows an increase of more than half a million yen over the same term of 1914. A meeting of the directors will be held to consider whether the surplus be put on reserve or be used as a dividend. Should the dividend be declared, the dividends of the company for this term will be 15 per cent.

Chosen Line Extends—The Chosen Yusen Kaisha has decided to extend its service between Fusan and Vladivostok to Nagasaki and Moji to provide facilities for trade with Siberia.

For Russian-U. S. Service—A Russian-American Conference will be called at Vladivostok soon to solve the old problems regarding the opening of a service between that port and America and to form an alliance on the matter of rebates.

Vladivostok is the only port Russia has in the Far East for the import of her war materials and since import across the Atlantic has now been rendered very difficult, this Far Eastern port has proved a very important feeder of the Russian army. Since the beginning of the war, the number of ships calling at this port has remarkably increased and at present a greater number of ships in port can scarcely be put alongside the quay. In consequence discharging work on the piers is greatly delayed. Besides four Japanese steamers with war materials from America, and two with rice from Rangoon, there were also several British and American ships busily engaged in discharging cargo, as well as the whole of the Russian Volunteer Fleet at work in the importation of war goods. Owing to lack of laborers the authorities have removed the restriction for the emigration of Chinese.

New N. Y. K. Steamers—The Nippon Yusen Kaisha will build six vessels of 7,500 tons and three of 3,200 tons the coming year. Orders for five have already been placed with the Mitsubishi Shipyard, to be completed in May, August and October of 1916. The order for the other four was placed with the Kawasaki Shipyard.

Japan Adds Battleship.—The Yamashiro, a new battleship which is now under construction at Yokosuka, will be launched in November, just before the Imperial Coronation.

The construction of the eight torpedo boat destroyers the appropriation for which passed the Imperial Diet in the recent session, has already been started at the Naval Docks at Yokosuka, Kure, Maezuru and Saseho, the Kawasaki Dock at Kobe, and the Mitsu Bishi Dock at Nagasaki respectively. As all the necessary materials are in hand the construction of these eight ships is to be completed by April next.

Tsingtau Fairways Clear.—Notice has been given that all submarine mines having been removed, the marine fairways to the port of Tsingtau are cleared of danger. However, navigation in the water-areas within three miles north and six miles west of Takungtao Island and 1.5 miles off Chufeng Island is strictly prohibited. Vessels drawing under 25ft. are now admissible to Main Harbour.

Chefoo and Amoy Tonnage.—The number and tonnage of ocean steamers entered at Foochow during the quarter ended December 31, 1914, was 125 ships of 125,346 tons, an increase of five ships, but a decrease of 7,855 tons from the same quarter of 1913. Of the total, British ships were 47.6 per cent, Japanese, 32.9, and Chinese, 18.2.

At Amoy there was a decrease of thirteen ships and 28,998 tons from the previous year, the totals being 200 ships of 251,728 tons of which 56.6 per cent. were British, 27.7 per cent. Japanese, 9.4 per cent. Chinese and 6.2 per cent Dutch.

Chinkiang Tonnage.—The total number and tonnage of ocean steamers entered at Chinkiang during the quarter ended December 31, 1914, was 26 ships of 34,652 tons, an increase of 5 ships but a decrease of 2,604 tons over the same quarter of the year before. The number of river steamers entered during the same time was 249 ships of 431,200 tons, an increase of 14 ships and 13,990 tons, over the same quarter of 1913. Of the total ocean steamers entered 61.9 per cent. were British, 15.2 Norwegian and the same percentage Chinese. Of the river steamers 50.8 per cent. were British, 26.3 per cent. Japanese and 22.2 per cent Chinese.

Penang Harbour Board.—The report of the Penang Harbour Board for the half-year ended December 31, 1914, shows a credit balance of $23,229. But after paying interest due to Government, amounting to $50,055, a debit balance of $26,826 is shown, and after deducting $18,828 brought forward from last year some $7,997 excess of expenditure results. The total expenditure on new works from July, 1913, to December, 1914, was $110,620. The tonnage of vessels using Swettenham Pier during the half year was 203,991, as compared with 340,348 during a corresponding period in 1913. The Board now has 98 wooden and 5 steel lighters with a tonnage capacity of 6,690 tons. During the half year 39 vessels were docked for painting and repairs, the tonnage being 37,017 tons as compared with 31 vessels and a tonnage of 29,935 for the previous half year.

M. B. K. New Shipping Base.—The Mitsui Bussan Kaisha Company, it is stated, has definitely decided to establish a shipping base in one of the ports of the Gulf of Mexico. The location of the base has not yet been fixed but the company is considering the erection of extensive warehouses in Galveston for storing cotton for shipment, although it is also said that New Orleans is being considered.

The directors of the Pacific Mail Steamship company, are seriously debating the advisability of severing all ties with the railroad interests now connected with the steamship company. A decision in favor of the move, would permit the company to divert its vessels from the Pacific trade to the Panama Canal trade between the east and west coasts of the United States. Under the Panama Canal act, steamship lines owned or affiliated with trans-continental railroads are not permitted to use the canal, for coast to coast trade.

FINANCIAL

Hongkong's Circulation.—The returns of the average amount of Bank Notes in circulation and of specie in reserve in Hongkong as certified by the Managers of the respective Banks, are as follows:—

Banks.	Average amount.	Specie in reserve.
Chartered Bank of India, Australia and China ..	$6,759,158	$5,000,000*
Hongkong and Shanghai Banking Corporation..	22,675,064	17,500,000
Mercantile Bank of India, Ltd	1,317,441	800,000†
Total	$30,751,663	23,300,000

* Sterling Securities deposited with the Crown Agents valued at $1,850,000.

† Securities with the Crown Agents £68,040.

China Paying Railway Loan.—The Ministry of Communications has paid into the Hongkong and Shanghai Bank and the Banque de l'Indo-Chine a sum of about $1,400,000 for payment of the half-yearly interest-coupons in respect of the Anglo-French Loan for the Redemption of the Peking-Hankow Railway of 1908.

Russian Bank for Mongolia.—The following is a translation from the Commercial and Industrial Magazine issued by the Financial Department of Russia:—

The application made by the Syndicate organized with the Commercial Bank of Siberia as its nucleus, in regard to the establishment of the National Bank of Mongolia has been sanctioned by the Minister of Finance. The capital is one million roubles and the Mongolian Government can purchase it after 50 years

from its organization. The main office will be at Petroglad, and branches will be open at Kulun, Uliassutai and Kobdo. The Mongolian Government is entitled to receive 15 per cent of its net profits.

The Mongolian Bank will be the only organ of monetary circulation, lack of which was mainly responsible for the hinderance of commercial development between Russia and Mongolia. Now that the amount of Russo-Mongolian trade reaches many tens of million roubles it has become impossible to get along without a bank, the fact being unanimously attested by Russian officials, consulates, merchants in the neighboring territory, as well as the Mongolians themselves. At the meetings held at Irkutsk and Petroglad in 1913, the necessity of establishing a Mongolia Bank was likewise pointed out. When the newly established bank came to open its doors an important question was to fix suitable regulations regarding loans. In this respect, Art. 6 contained in the exequatur issued by the Mongolian Government provides as follows:—

"Should it be desired that the National Treasury of Mongolia is held responsible for loans made by the bank, no loans should be made to Lamas, Hans, Princes or any Mongolians whosoever."

Anglo-Japanese Bank.—Rather more than a year ago the Commercial Bank of London, originally the Anglo-Japanese Bank, underwent a reconstruction, says the *Financial Times*, that involved a writing down of the paid up value of the shares from £5 to £3. It was then intimated that the Company's Japanese connection, which was being run at a loss, had been severed, but that other business remained which it was hoped would enable dividends to be paid on the reduced capital. According to a report just to hand, covering the period from 3rd March, 1914, to 31st March, 1915, business up to the end of July was proceeding satisfactorily, but the suddenness of the outbreak of the war rendered it necessary to realise certain investments at a loss, which has been provided for. The gross profit for the year amounted to £8,007, and, after deducting expenses and income-tax, the net receipts were only £2,357, of which £1,285 has been applied to the extinguishing of the preliminary expenses and £1,072 is being carried forward. The total of the balance-sheet is £537,700. On the assets side the largest item is £352,400, representing investments which are taken "at cost." On the other side there are loans against bills receivable and investments figuring £337,000, while the current and fixed deposit accounts amount only to £11,900. The Company's cash holding is restricted to £22,600.

Wants Loan of 2,500,000 Yen.—The Ensuiko Sugar Refining Co. is reported to have a plan to issue a loan of 2,500,000 yen. The question will be submitted, it is said, to consideration at the coming general meeting of the company's shareholders. The money is to be spent for the redemption of the existing loan of the company to the same value.

Borrows to Pay Loan.—The Tokyo Electric Light Company will repay the loan from Messrs. Sale & Frazar, to the extent of £300,000, which will mature on July 6, in cash out of funds to be raised in the domestic market.

Shanghai Fund Nears Million.—The Chinese Salvation Fund for national defense prospered during the June Dragon Festival. The merchants and all the public bodies and trade guilds contributed their feasting money towards it. The Shanghai fund now amounts to little below a million dollars. There is every hope that the pledged amount—$5,000,000—will be reached. The total hoped for from the whole country is $50,000,000. At present almost every important city has a branch. The Japan-China negotiations have greatly strengthened the Chinese national unity. The name "national goods" has come into wide popularity. During even the short period that has elapsed, Chinese industries have received great development.

China's Foreign Debts.—With the exception of railway loans to be redeemed by the Department of Communications, the total of foreign loans and indemnity to be repaid by the Chinese Government during the current year amounts to $85,516,035. The details are as follows:—

Kusa Loan	$ 785.037
Arnhold, Karberg Loan	785,037
Franco-Russian "	9,203,348
Anglo-French "	10,636,471
Anglo-German Supplementary "	9,188,696
Krupp "	2,750,000
Political "	13,750,000
Boxer Indemnity "	38,417,445

Estimate of China's Revenue.—The principal sources from which the Republican Government expects to derive its income during the current year are

Land Tax.—Judging from the reports sent from the various provinces last year, the revenue from this source during the present year will amount to $66,000,000, provided nothing unforeseen takes place.

Maritime Customs.—Everything points to the possibility that the Customs receipts will not go higher than $24,000,000 this year, a shrinkage of some 3 million dollars compared with the revenue of the year previous.

Salt Gabelle.—A sum of $65,000,000, is expected to be raised from the Salt Gabelle during the current year.

Native Customs.—The likin will enrich the National Treasury to the extent of 60-70 million dollars, an estimate that has been questioned. About 43,000,000 will be raised from government enterprises. Over $19,200,000 are expected to be received from various new taxes.

Manchuria's Trade.—A British Consular report on Manchuria says that the quality of British articles is often unnecessarily high for market. The first essential is cheapness, and a lower grade of merchandise will meet the requirements of the purchaser equally well. Commercial travellers who make a round of the retail establishments once or twice a year will find plenty of business They should be prepared to put up goods in small lots. The majority of Japanese shops appear to buy their goods in Japan. In some cases such merchandise may come from a bonded warehouse, but the terms of payment allowed by German merchants will often induce Japanese shopkeepers to buy goods which have already paid Japanese import duty. British manufacturers sending their goods to the Japanese market would be wise to have their trade marks registered in Tokio. Generally speaking, most of the business at Tairen is done on a c.i.f. basis, the vendor drawing on the buyer at 90 days sight. Some business is done on a f.o.b. basis. Much business, however, is done on other conditions, principally cash against documents, which is usually interpreted by the buyer as cash on receipt of goods.

Trade of the Philippine Islands.—Customs duties from the five principal ports of the Philippine Islands show an increase for May over last year of P.22,700.33. While Manila has a decrease of P.19,688 and Jolo and Zamboanga show a decrease of P5,556 and P.10,369 respectively, Cebu and Iloilo record an increase of P.23,517 and P.34,888 making a total of P.58,405 against P.35,615, the total decrease in the collections at the other three ports. In addition to the total sum of P.1,038,675 collected in customs duties at the five ports last month, the bureau of customs collected P.116,723 in internal revenue taxes on imported goods.

April returns show an increase of P.2,396,786 in exports and a decrease of P.1,973,082 in imports while total foreign trade of the Philippine Islands shows a net increase of P.423,704 for April, 1915, over the same period last year. The exports exceeded the imports by P.3,647,906 with the following comparative totals:

	April, 1915	April, 1914
Imports	P.5,759,316	P.7,734,398
Exports	9,406,222	7,009,436
Totals	15,165,538	14,741,834

The principal items of increase in the export column are copra and hemp. In quantity, the increase in the exports of copra over April of last year amounts to 4,201,745 kilos, from 4,786,951 in April, 1914 to 8,988,696 in April, 1915, and in value P.557,006, from P.1,039,436 to P.1,596,442. Cocoanut oil exports show an increase of 492,244 kilos, from 722,544 to 1,214,-788. The increase in value is from P.303,130 to P.355,296.

Hemp exports increased from 7,669,415 kilos during April of last year to 14,737,637 last month. In value the increase is from P.2,592,-238 to P.4,455,906.

Sugar shows a decrease in quantity exported from 22,117,912 to 16,161,795, but the higher prices prevailing this year have resulted in more value received despite the decrease in quantity, the increase being from P.1,885,104 to P.1,908,898. Cigars fell off from 14,045,382 to 11,151,735 and cigarettes from 5,432,407 to 4,113,603, while other tobacco exports increased slightly. In the import column the heaviest falling off is in iron and steel products, the decrease being from P.1,308,392 to P.366,626, or P.941,766. Rice imports show an increase from P.416,232 to P.921,492, or P.505,260.

MINES, MINING AND METAL MARKETS

New York's Hurry in Zinc.—Interest is almost entirely centred in the great rise in spelter prices and the far-reaching effects of its scarcity. Nearby deliveries of prime Western bring 20 to 22c. gold, and premiums are willingly paid for future deliveries. Never before have the producers been sold up so thoroughly, or so far ahead. Much talk is heard of finding substitutes for spelter. A wild scramble to buy spelter has sent prices up with a rush to levels which exceed the price of electrolytic copper, which, needless to say, breaks all records. Prompt metal is now quoted at 21 to 22c. Ordinary differentials between positions, and prices, East and West, have been more or less disregarded in the haste to buy. Forward deliveries as well as nearby shipments are commanding premiums, and little is to be had at the high prices. Business has been done into next year. Never before have the producers and sellers been in such a tight position. There is talk not only of substitutes for spelter, but for the products into which it enters. Black sheets coated with tin and lead are cheaper to-day than galvanized sheets, while painted sheets are a common substitute. If the present trend continues it is believed that recourse will be had to copper sheets for purposes where the price has heretofore been prohibitive. As for sheet-zinc, aluminum sheets can now be sold at a lower price. The base price of sheet-zinc has been advanced to 22c. by one of the large interests.

U. S. Copper Lower.—The market has been neglected by both domestic and European buyers. The lack of demand has developed pressure to sell on the part of second-hands. They have quoted down to 18.50c. gold and there have been reports that still less would be accepted. The producers, most of whom have been holding to 19c., 30 days, delivered, now show a tendency to make concessions.

Scramble for Lead.—The surprise of the week ending June 1 were three advances of $2 per ton, or 30c. per 100 lb., making the quotation 4.50c. Up to that time the lead market had been quiet. The first advance of $2 on May 26, stimulated buying, and on May 27, there was another advance announced by the large interest, also of $2 per ton, making the New York quotation 4.40c. per pound. On May 28 there was a further advance to 4.50c. New York. Subsequent to the last two advances the independents advanced their St. Louis price to 4.32½c., then to 4.42½c. Exports have been good.

Tin Market Quiet.—The market has been almost uniformly quiet, heavy arrivals have put a quietus on all fears of a shortage for the time being. The trend of the market has been steadily downward. There have been days of good buying, but the quiet ones were more frequent. The quotation was 37.5 to 38 cents.

Antimony Market Quiet.—The situation is not changed with regard to English brands. They are unobtainable and therefore not quoted. Chinese and Japanese are quoted at 35 to 38c. Owners of deposits of antimony ore are seeking financial backers; but it is a question how successful they will be in view of the fact that the present abnormal condition will pass with the end of the War.

Aluminum Sheet Scarce.—Buyers are casting about, but with poor success, to buy sheet aluminum through other than the ordinary channels. Sheets are nominal at 31 to 32c. The metal is scarce and prices have advanced from 25.50 or 26c for 98 to 99% purity.

New South Wales Gold.—Official returns prepared at Sydney show the yield of gold for New South Wales to have been 124,507 ounces fine, valued at $2,573,760, in 1914, as compared with 149,657 ounces, valued at $3,093,648, in 1913.

TRADE RETURNS

Straits Trade.—During the fourth quarter of 1914 the total value of imports into the Straits Settlements was $90,391,137, against $118,903,254 in the last quarter of 1913. The totals follow:

Singapore, $66,693,980 agst. $78,873,716.
Penang, $21,143,282 agst. $37,702,946.
Malacca, $2,554,875 agst. $2,326,592.

Malacca was the only Settlement to show an increase.

The total value of exports for the same period was $85,702,222 against $92,288,887. The totals for the various Settlements were as follows:

Singapore $61,144,733 agst. $60,466,436.
Penang $19,823,221 agst. $28,743,373.
Malacca $4,374,268 agst. $3,078,078.

Singapore showed a slight increase whilst Malacca exports grew thirty per cent.

Considered as a whole, the decrease in trade volume can hardly be taken pessimistically considering not only the stoppage of many large firms but also the difficulties of delivery and the heavy brake put upon trade by freight charges; as a matter of fact the import and export of Para rubber has by itself gone far to make the figures favourable. In 1913 the imports were 35,535 piculs, in 1914 they rose to 81,583 and though values were comparatively lower the total value was nearly double.

Trade of Selangor.—The result of the war on trade generally is well illustrated by the following table:—

	Imports 1914.	Imports 1913.
1st quarter ...	$9,971,173	$ 9,681,237
2nd „ ...	9,341,650	9,955,745
3rd „ ...	8,106,787	10,754,705
4th „ ...	6,958,461	10,794,454
Total Selangor	34,378,011	41,186,141

	Exports 1914.	Exports 1913.
1st quarter ...	$11,692,304	$17,189,703
2nd „ ...	10,545,127	13,117,955
3rd „ ...	10,035,862	14,157,043
4th „ ...	12,652,024	11,647,137
Total Selangor	44,925,317	55,111,838

The export figures appear to have been little influenced. With tin at a much lower price than the previous year, the first quarter's exports amounted to only 11 millions, as against 17 in 1913. The second and third quarters dropped to 10 millions each (as against 13 in 1913), so that evidently the outbreak of war has had not quite the depressing influence anticipated. With tin rising towards the end of the year the last quarter closed with an export of 12½ millions, actually one million more than during the corresponding quarter of 1913.

Japan's Foreign Trade.—The Department of Agriculture and Commerce has announced the returns of foreign trade of Japan during the first three months of 1915. The returns show a remarkable decrease. The total amount of exports in three months was yen 140,371,000, a decrease of yen 13,512,000 compared with those of the corresponding period of last year, while the imports were yen 127,636,000, also a decrease of yen 71,198,000, from the previous year. The monthly returns follow:—

	Exports Yen	Imports Yen
Jan.	40,986,000	40,950,000
Feb.	49,008,000	40,583,000
Mar.	50,377,000	46,103,000
Total..............	140,371,000	127,636,000

The foreign trade of Japan for the second ten days of June was 18,936,000 yen exports and 17,311,000 yen imports, with a balance of 1,625,000 yen in favor of exports. Compared with the returns for the previous ten days, the value of exports has increased by 24 per cent, principally in copper, raw silk, tea, hats, braids, etc. Imports have increased by 43 per cent., raw cotton, iron and oil cake, accounting for most of the increase. The figures since January 1, 1915 are 281,583,000 yen of exports and 275,507,000 yen of imports, with an excess of 6,076,000 yen of exports.

Shanghai's Trade.—Like other parts of China, Shanghai has suffered considerably as the result of the war in the imports of iron and machinery, says the *Shanghai Times*. The total value of machinery imported during the quarter ended December 31, 1914, was only Tls. 47,394 as compared with Tls. 110,601 in the same quarter of the preceding year. The quantity of old iron imported fell from 23,997 piculs in the quarter ended December, 1913, to 12,051 in the same quarter of last year, though the importation of angles and bars shows an increase, being 12,577 piculs last year against 8,338 piculs in the same quarter of the year before. The import of electrical materials, lamps and lampware, decreased from Tls. 10,427 in the last quarter of 1913 to Tls. 6,893 last year, while galvanised iron sheets fell from 14,686 piculs in 1913 to 8,533 piculs last year.

Mongolia Trade Poor—According to the statement of a Russian merchant having recently returned from Mongolia, Russian trade at Kulun is in a decidedly poor state, a slight advance in price of commodities produced in Russia as the result of the depreciation of roubles being responsible for the decrease of patronage. The depression is even noticed at Maimaicheng, where Russian trade fell off 20 to 30 per cent during last year. Since the development of trade of other countries in Mongolia means the waning of Russian influence, he thinks they must do everything to re-establish and maintain good commercial relations with the natives.

He points out the fact that a large quantity of American goods are now imported to Mongolia. Among the sheeting, an article having the largest demand among the natives, most is of American origin. This is imported to China, where it is dyed and then shipped to Mongolia. The method of dyeing being far superior to that practiced among the Russians, the article is favorably received.

Trade at Tsingtao.—Things are slowly but steadily improving at Tsingtao with regard to trade. Cotton cloth and yarn, matches, timber, and marine products, are the chief imports, and raw cotton, groundnuts, straw plaits, cattle and hides, the principal exports. There is no coal to spare for export.

The Customs returns from Dec. 28th to Jan. 31st were:

Imports	S.Y. 664,861
Exports	110,861
Re-exports	79,287
During February they were:	
Imports	S.Y. 980,775
Exports	313,113
Re-exports	96,202

The valuation is in Japanese war notes.

The returns for April and May follow:—

April	Tls.
Aggregate amount ...	...1,489,317
Imports	... 951,883
Exports	... 302,707
Re-exports	... 234,726
May	
Aggregate amount ...	...1,465,188
Imports	... 835,958
Exports	... 375,275
Re-exports	... 235,945

Tea Trade with America.—The shipment of tea from Yokohama to Canada and America during the first three months of this year was: January, 364,040 pounds; February, 141,465; March, 134,181.

AGRICULTURE

Sericulture in Korea.—According to a report quoted by the *Seoul Press* the area planted with mulberry trees is steadily increasing in Korea. Investigations made in December, showed 2,928.2 cho of land entirely devoted to the cultivation of mulberry trees and 7,318 cho partly planted with them, making a total of 10,246.2 cho, an increase of 37 per cent over the preceding year. Compared with 1910, this shows an increase of 6,900 cho with a product of 32,000 koku of cocoons more than in that year. The total quantity of cocoons obtained last year was 46,000 koku. The ratio of 0.6 koku of cocoons to one tan of land is far from being satisfactory compared with the ratio of one koku per tan in Japan.

THE FAR EASTERN REVIEW

COMMERCE :-: ENGINEERING :-: FINANCE

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CHINA AS A MOST PROMISING FIELD FOR PLANT EXPLORATION

What the United States Department of Agriculture is Doing in the Modern Utilization of the Agricultural Resources of Ancient Cathay.

The ambition of every scientist is to blaze the way into untrodden fields of thought, and while most of the latter day devotees of knowledge find that the path leads only to a daily routine between the four walls of a laboratory, there are some whose workshop is the world and whose pleasure it is to penetrate into the deserts and mountain fastnesses of the back blocks of the earth, to find there some ancient thing which modern man may bend to his use. Such is the work of Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture of the United States, and for ten years he has been traversing China in the search for some new plant or old one that may be turned to profit by the modern agriculturist. Nor does he return empty handed, since his every trip into the fastnesses of the land of Sinim has been productive of a wealth of agricultural and other material whose value no man can yet estimate, since the economic value of his discoveries has not been put to the full test of long continued use.

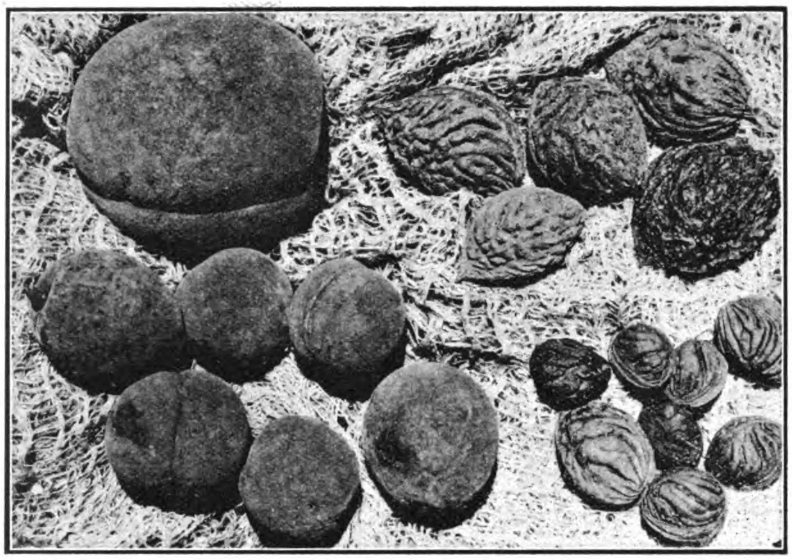
In his ten years' wandering, Mr. Meyer has traversed many regions whose proper position on the map and whose boundaries are not yet definitely fixed. Chinese and Russian Turkestan, the Altai Mountains and the Gobi Desert are as well known to him as is his front door stoop to the average laboratory professor. Mr. Meyer was the first white man of modern times to penetrate the virgin forests of the upper Yalu and Tumen rivers and his is probably the first white foot to tread the oases of China's great deserts, for his work is not only to investigate the fertile plains and grazing grounds in search of the plant or tree of immediate economic importance which can be adapted to new surroundings, but to penetrate the barren lands and jungles and there find the rudimentary and long forgotten parent stock or the as yet unused wild plant that may be adapted to man's profit by cultivation.

MR. FRANK N. MEYER, Plant Explorer for the U. S. Department of Agriculture

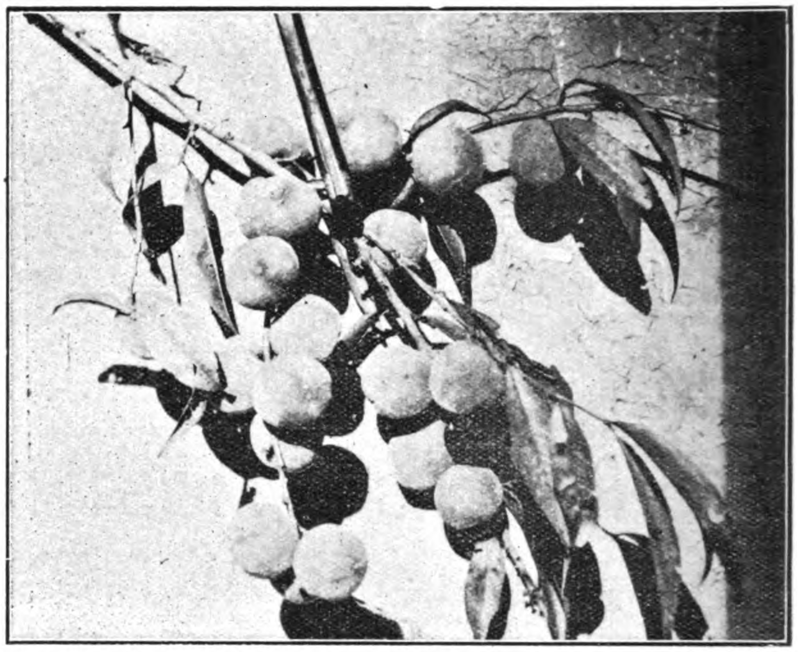
Mr. Meyer is now returning to the United States after his fourth journey through China, the only one that he has not completed according to his prearranged schedule. This incompleteness was due to the disinclination of his baggage bearers to be boiled in oil and eaten alive by the Thibetans, a fate which they were assured would certainly overtake them if they ventured across the border of Kansu Province, the most northern of China proper, into Thibet, and as the warning was given by the Chinese officials of that outpost of China, the bearers vanished in the night, leaving the explorer to get his collections and food supplies to a shipping point as best he might.

China is the most important field for the plant explorer from the United States, Mr. Meyer says, because the range of climate of the two countries is so similar that plants from any zone of China will find favorable climatic conditions in America. So closely allied are the vegetations of the two countries that he has come to believe that the Eastern half of the United States must once have been connected by land with China. In no other way can he account for the two countries possessing plants and trees that scarcely can be told from each other, than that in the early ages of the world, the parents of both the Chinese and American varieties were carried from one to the other.

Of the numerous examples he is prepared to cite, a few may be specially mentioned. The magnolia of the Southern States has many close relations in China, the only other country where this tree is known to grow. The sassafrass with its toothsome root and odor used in scenting soap, as it grows in the United States differs very little from the Chinese variety. The tulip tree, *Liriodendron tulipifera*, is found only in Hupei province and in the southern United States. Even the tree from which the Chinese get their tea-chest wood, *Liquidamber formosana*, is practically identical with the sweet gum tree of the South, *Liquidamber styraflua*, and many of the maples and oaks with which the two countries abound are so similar that the microscope of the botanist is required to determine whether their origin was China or the United States. The tree that produces the wood for leadpencils is so similarly



Wild and Cultivated Peach compared as to size of fruit and stone



China's Wild Peach, forerunner of all cultivated peaches. Grows in Shensi, Kansu and Szechuan

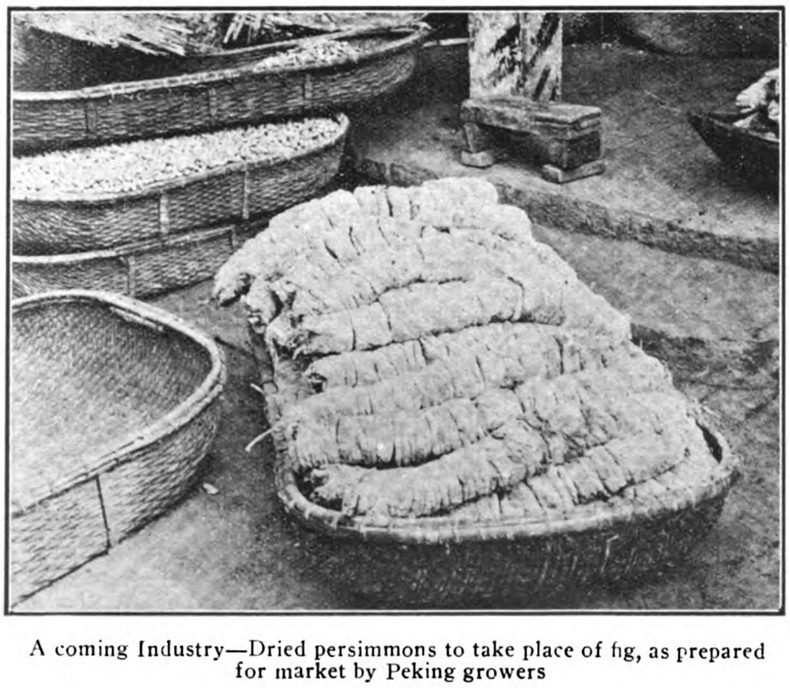
paralleled that one is called *Juniperas virginiana* and the other *Juniperas chinensis*, the name of the country being about the only visible difference.

China's plants and trees having been grown and tended by man over so many centuries more than those of the United States, it is to be expected that some of the characteristics of the people might have been acquired by the trees and the reasonableness of this supposition is borne out by one of the many important discoveries made by Mr. Meyer in the journey he has just finished. The chestnut trees of the United States have been attacked during the last decade by a blight whose ravages have proved so serious and the efforts of scientists so unavailing that the chestnut groves of the United States are acknowledged to be doomed to speedy extinction. Now China also grows the chestnut, and is probably one of the parent countries of that tree. Therefore Mr. Meyer examined the Chinese chestnut to see whether it was attacked by the same disease which was believed to have been introduced into the United States from Japan. The disease was found, but with this difference, that the tree grew on despite it and seemed scarcely distressed by the fungus growth that was killing the chestnut forests of the United States. The Chinese tree seemed to have acquired powers of resistance to disease, a quality so often attributed to the Chinese people, that its more modern United States representative utterly lacked. So it will come about that the chestnut forests of America will be replaced by the Chinese tree and the economic void that would be left by the disappearance of the former be obviated.

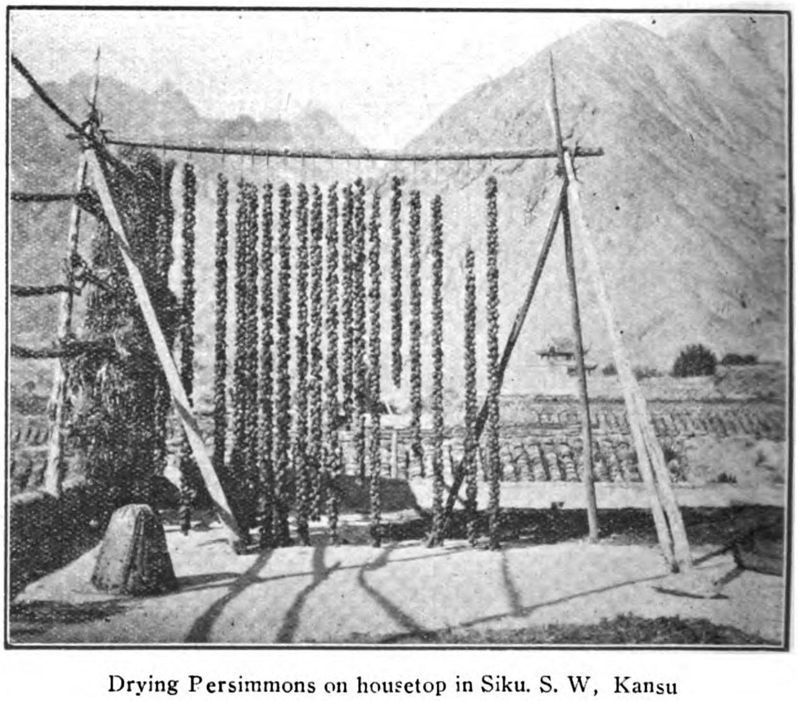
But that is not the most important of the late discoveries of Mr. Meyer, to whom many problems of the farmer of the new world are presented for solution. One of the drawbacks to agriculture in some sections of the United States is the occurrence of droughts that sometimes make irrigation imperative even in regions where ordinarily the rainfall is sufficient to mature the crops. There are also many semi-arid regions where fertile soil goes untilled through lack of crops that will resist drought. California has many such localities and her orchards wage continual warfare with the arid lands that ever encroach upon them. Now the warfare will go against the arid land, for Mr. Meyer has discovered the wild peach, a root stock for the stone fruits, the peach, apricot and plum, which will live and thrive almost without water and on which the horticulturist may bud and graft his luscious fruit-bearing branches and defy the droughts to retard their growth.

Darwin's Theory and the Peach

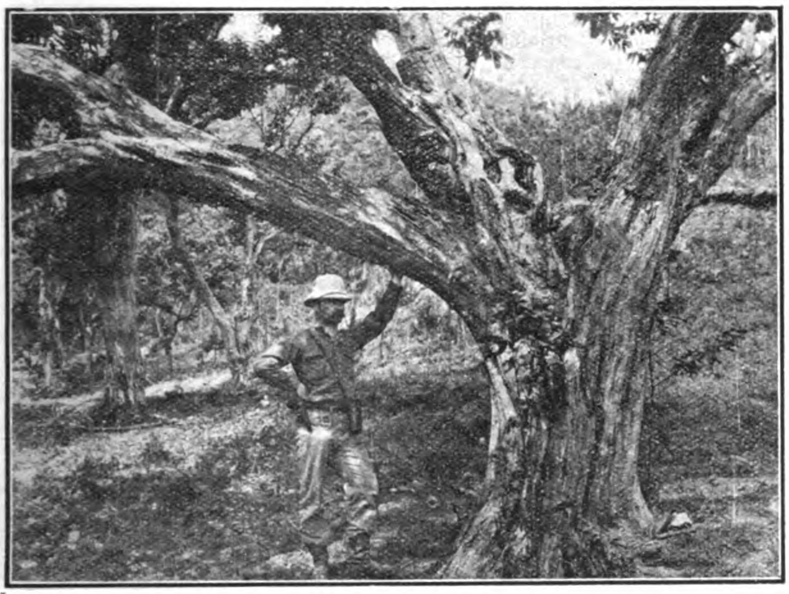
This discovery of the wild peach by Mr. Meyer will add another chapter to one of the most inspiring ideas that Nine-



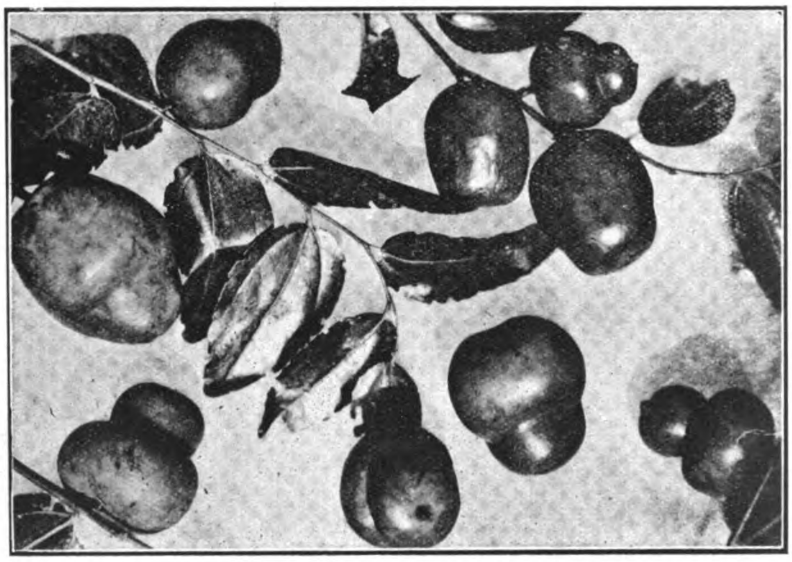
A coming Industry—Dried persimmons to take place of fig, as prepared for market by Peking growers



Drying Persimmons on housetop in Siku. S. W, Kansu



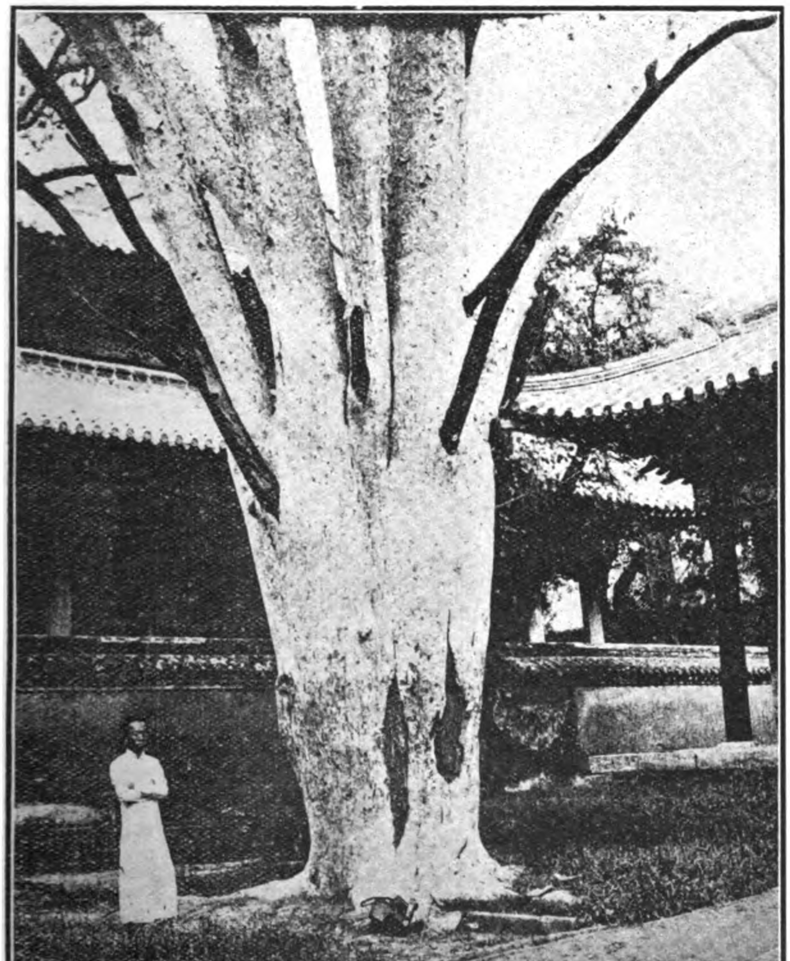
Chestnut tree afflicted with blight that is overcoming chestnut of United States. This tree of China is more resistant and may replace American one



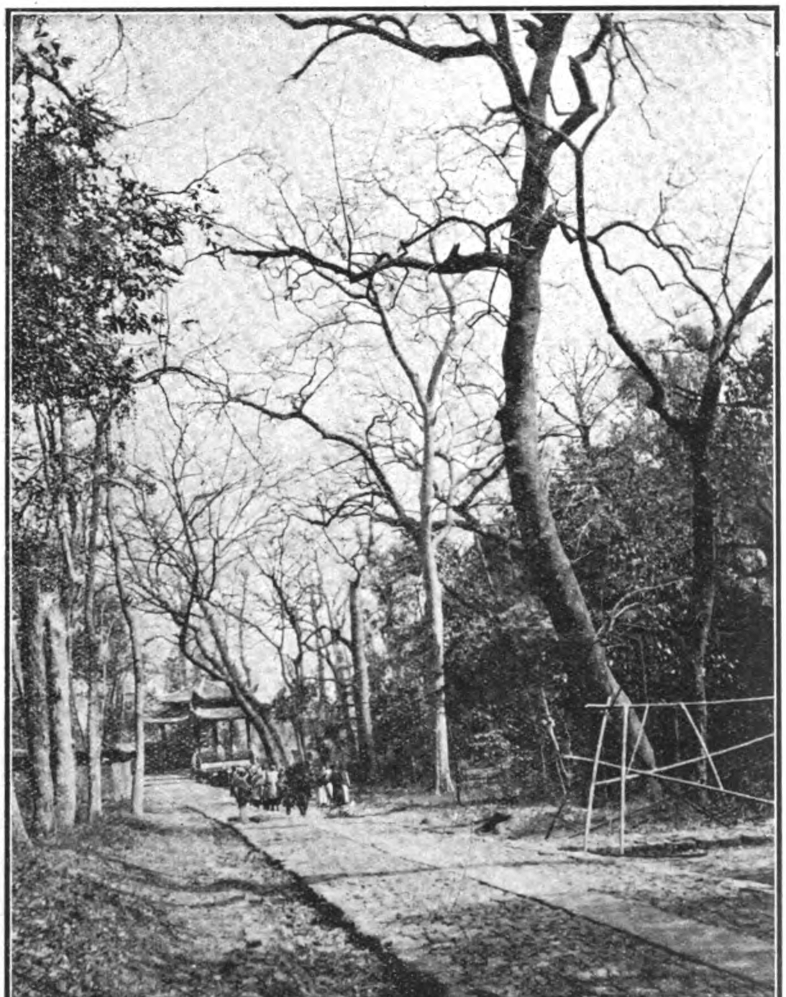
The Mother-in-law Jujube (Zizyphus sativa). When dried closely resembles the Persian date

teenth Century science brought forth, for it was around the peach that one of the waves of the Darwinian theory of the "origin of species" eddied and dashed with force enough to wear down even such a durable stone as that of what the scientists call *Prunus persica*. Darwin contended that the peach and the almond were from the same stock and quoted the nectarine as a modification of the peach to prove his theory.

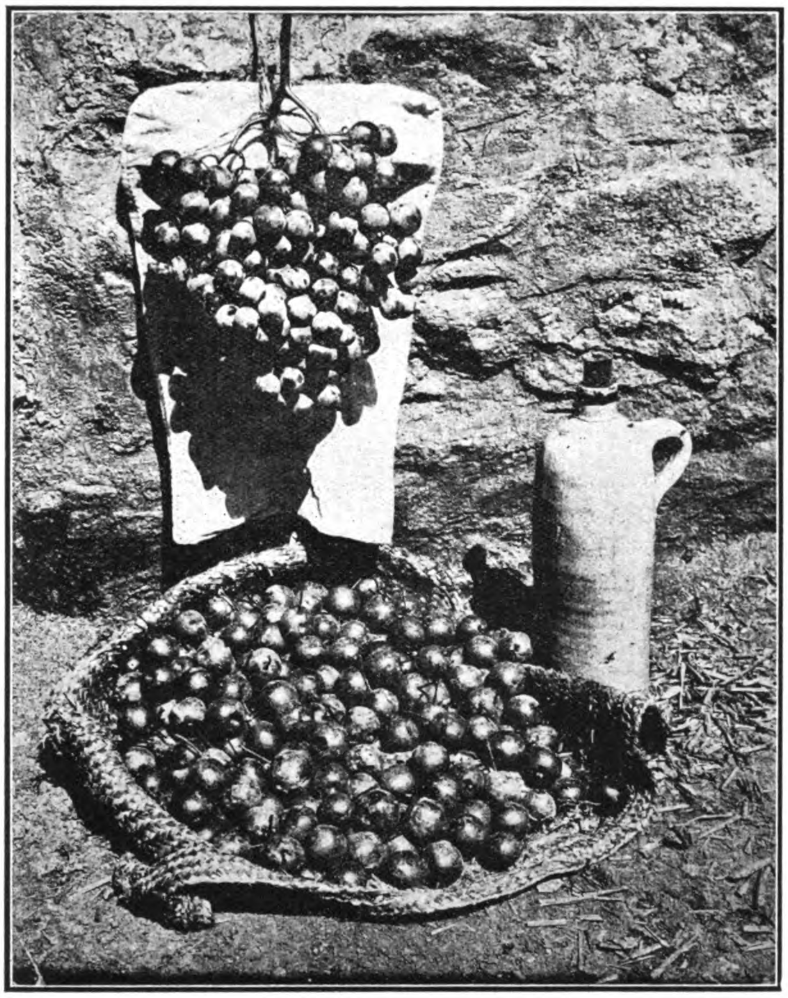
Many years ago, a wild almond was found in Afghanistan that partook of some characteristics of the peach, but it remained for Mr. Meyer to discover the true prototype of the peach on the mountain sides of China. Scientists had argued that the peach had been tended by the hand of man so long that if this kindly help were withdrawn, the peach would perish from off the earth, dying out in one generation of trees. Such is the case with all highly cultivated plants, a good example being Indian corn or maize, received by the white explorers from the hands of the Incas in substantially its present form of an enclosed ear of grain totally unable to scatter its seeds. It requires carefully regulated conditions to preserve it for the next planting season and its proneness to decay and attack by both insects and animals makes it more dependant upon man than he is upon it.



White Barked Pine Tree (Pinus bungeana) in the Birthplace of Confucius, chosen by Ex-Minister W. W. Rockhill to be planted upon his grave



The Tea Chest Tree (Liquidamber formosana) blood brother to Sweet Gum Tree of Eastern United States.



Shantung Grapes and Wild Pear (below) the latter to form a resistant stock for grafting U. S. varieties

A resume of the almond and peach Darwinian controversy is given below, although the Drawinian theory is now so securely entrenched that its few surviving opponents will make little gain with the munitions thus provided by Mr. Meyer's discovery of the wild peach. The following statement of the controversy is from the pen of Dr. M. T. Masters:

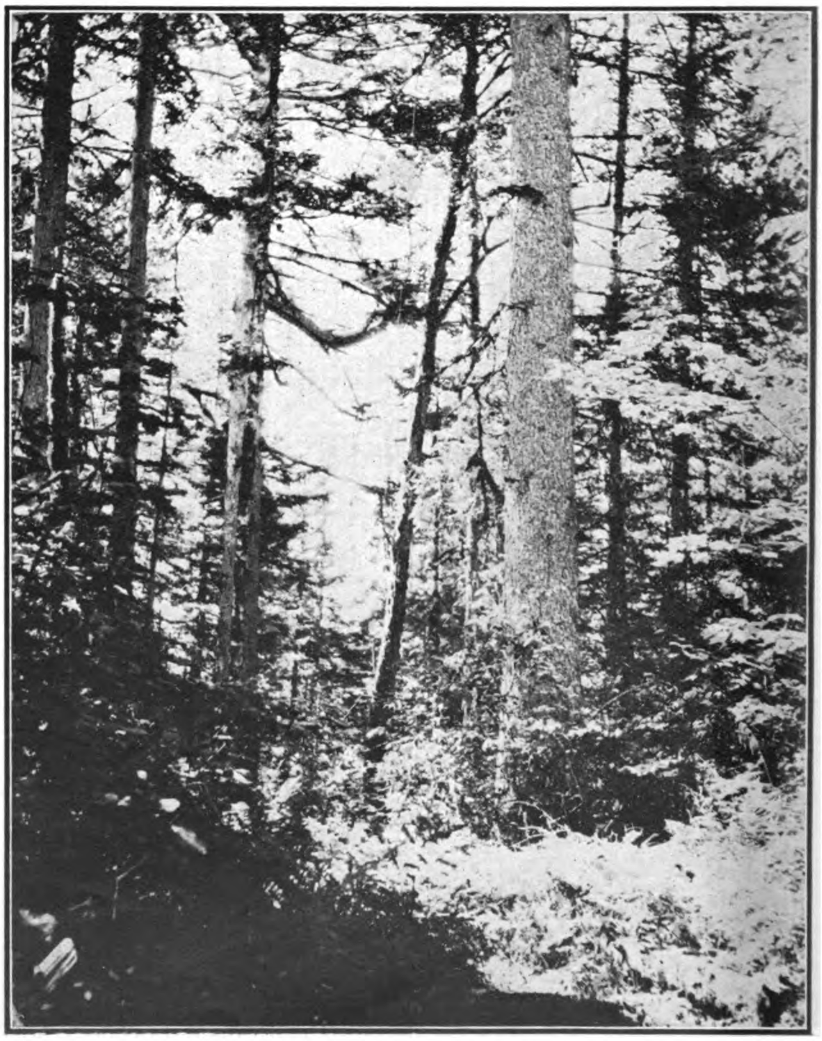
The history of the peach, almond, and nectarine is interesting and important as regards the question of the origin of species and the production and perpetuation of varieties. As to the origin of the peach two views are held, that of Alphonse de Candolle, who attributes all cultivated varieties to a distinct species, probably of Chinese origin, and that adopted by many naturalists, but more especially by Darwin, who looks upon the peach as a modification of the almond. The importance of the subject demands that a summary of the principal facts and inferences bearing on this question should be given. In the first place, the peach as we now know it has been nowhere recognized in the wild state. In the few instances where it is said to have been found wild the probabilities are that the tree was an escape from cultivation. Aitchison, however, gathered in the Haxardarakht ravine in Afghanistan a form with different-shaped fruit from that of the almond, being larger and flatter. "The surface of the fruit," he observes, "resembles that of the peach in texture and colour; and the nut is quite distinct from that of the wild almond. The whole shrub resembles more what one might consider a wild form of the peach than that of the almond." It is admitted, however, by all competent botanists that the almond is wild in the hotter and drier parts of the Mediterranean and Levantine regions. Aitchison also mentions the almond as wild in some parts of Afghanistan, where it is known to the natives as "bedam," the same word that they apply to the cultivated almond. The branches of the tree are carried by the priests in religious ceremonies. It is not known as a wild plant in China or Japan.

As to the nectarine, of its origin as a variation from the peach there is abundant evidence, as has already been mentioned; it is only requisite to add the very important fact that the seeds of the nectarine, even when that nectarine has been produced by bud variation from a peach, will generally produce nectarines, or, as gardeners say, "come true."

Darwin brings together the records of several cases, not only of gradations between peaches and nectarines, but also of intermediate forms between the peach and the almond. So far as we know, however, no case has yet been recorded of a peach or a nectarine producing an almond, or *vice versa*, although if all have had a common origin such an event might be expected. Thus the botanical evidence seems to indicate that the wild almond is the source of cultivated almonds, peaches, and nectarines, and consequently that the peach was introduced from Asia Minor or Persia, whence the name Persica given to the peach; and Aitchison's discovery in Afghanistan of a form which reminded him of a wild peach lends additional force to this view.

On the other hand, Alphonse de Candolle, from philological and other considerations, considers the peach to be of Chinese origin. The peach has not, it is true, been found wild in China, but it has been cultivated there from time immemorial; it has entered into the literature and folk-lore of the people; and it is designated by a distinct name, "to" or "tao," a word found in the writings of Confucius five centuries before Christ, and even in other writings dating from the 10th century before the Christian era. Though now cultivated in India, and almost wild in some parts of the northwest, and, as we have seen probably also in Afghanistan, it has no Sanskrit name; it is not mentioned in the Hebrew text of the Scriptures, nor in the earliest Greek times. Xenophon makes no mention of the peach, though the Ten Thousand must have traversed the country where, according to some, the peach is native, but Theophrastus, a hundred years later, does speak of it as a Persian fruit, and De Candolles suggests that it might have been introduced into Greece by Alexander. According to his view, the seeds of the peach cultivated for ages in China, might have been carried by the Chinese into Kashmir, Bokhara, and Persia between the period of the Sanskrit emigration and the Graeco-Persian period. Once established its cultivation would readily extend westward, or, on the other hand, by Cabul to north-western India, where its cultivation is not ancient. While the peach has been cultivated in China for thousands of years, the almond does not grow wild in that country, and its introduction is supposed not to go back farther than the Christian era.

On the whole, we should be inclined to attribute greater weight to the evidence from botanical sources than to that



Virgin Forest in Northern Korea

derived from philology, particularly since the discovery both of the wild almond and of a form like a wild peach in Afghanistan. It may, however, well be that both peach and almond are derived from some preexisting and now extinct form whose descendants have spread over the whole geographic area mentioned; but of course this is a mere speculation, though indirect evidence in its support might be obtained from the nectarine, of which no mention is made in ancient literature, and which, as we have seen, originates from the peach and reproduces itself by seed, thus offering the characteristics of a species in the act of developing itself.

Aside from its scientific interest, the wild almond-peach will be a boon to the horticulturists in the semi-arid lands as it will form a drought resisting stock on whose friendly trunk will flourish generations of fruits that may eclipse even the peach and the nectarine combined in the eyes of posterity. Not only the peach and the almond, but the plum and apricot and even the cherry can be grafted upon it. These are the so-called stone fruits, as distinguished from the seed fruits such as the pear and apple. For all of the stone fruits this new resistance stock will be available.

China Home of Many Fruits

This discovery of the wild peach has confirmed Mr. Meyer even more strongly in his belief formed several years ago that China is really the home of many fruit trees that we have supposed came originally from Europe, since not only the peach, the almond and the apricot of the stone fruits have Chinese prototypes in a more or less primitive state, but also the pear and the apple, and even some of the nut trees, notably the walnut. This last named tree has so long been called the English walnut in the United States, that its Chinese origin may come as a surprise. As for the apple and pear they also may be extended over semi arid lands, as Mr. Meyer is taking back with him a wild pear from Shantung province that will be tested as a root stock for the seed fruits. But among all these, the wild peach is Mr. Meyer's most notable discovery of the present trip, and it is one which THE FAR EASTERN REVIEW has the honour of first announcing to the world.

Not only fruits but some of the most important flowering plants of the United States have come from China, making their way by slow stages through other countries, which in many cases are credited with being their original habitat. Japan, for example, is widely believed to be the home of the wistaria, but this flower was grown and cultivated in Chinese gardens perhaps a thousand years before the first Chinese pirate set foot on Japanese soil and drove the entering wedge that was to result in the development of the then barbaric Nippon through the kindly efforts of Chinese sages, artists, artificers and philosophers, which last class gave Japan not only the Buddhist but her Shinto religion as well.

Other notable flowers whose origin is China are the camelia and chrysanthemum, an immense variety of primulas and the tree peony, one of the most beautiful of flowering plants. This does not exhaust the list of Chinese gifts to mankind, since the alfalfa, that made so many Kansans rich beyond their wildest dreams in the early days of the settlement of that semi-arid state, also is a native of China, and is distinctly mentioned by a writer in the year 100 A.D., who not only described it, but the grape, the pomegranate and the watermelon, all of which were early inhabitants of the Flowery Kingdom.

The real home of the grape, however, is believed to be Russia-Turkestan rather than China proper, but those who have had opportunity of tasting the splendid grapes grown in Shantung, especially about Chefoo, will admit the ability of the Chinese vitaculturist. They are a true wine grape, and while the Chinese prefer the mild rice spirit known as samshu (very similar in taste to the Japanese saki) the time may come when China will take its place among the wine producing places of the world.

The United States is not the first country to attempt to use China's plant resources, as most of the Chinese flowers that have become so well known in other countries are due to the efforts of a British naturalist named Fortune, who gathered much plant material from the neighbourhood of Chinese cities, which was later used to ornament the gardens of English homes, although many centuries before this endeavour Chinese tea, which is also a flowering plant of the camelia family, had been introduced into India and Ceylon, and its contribution to these two countries, to say nothing of Formosa and Japan, runs into the millions of dollars annually.

During this present trip, Mr. Meyer has made several discoveries of products that may be of great interest to the exporter as they lie ready to his hand for introduction into the markets of the western world. One of the most important of these is the dried persimmon, which the Chinese of Kansu thread upon strings and hang in the sun on the tops of the flat roofed houses, later compressing the fruits until they are about the size and shape of a dried fig. Many hundreds of tons of these persimmons are consumed in China itself, but the Chinese have always proved equal to any demand for excess production when an export trade is developed. This persimmon is another discovery of economic importance to the United States as well, since it will grow in any of the southern states and is far superior to the home grown varieties for whose ripening the small boy eagerly consults the thermometer at night in the hope that the morning will bring a frost to turn the astringent fruit into one that can be eaten without unduly puckering the tender membrane of the mouth.

New Persimmon for the South

The most important variety of persimmon that Mr. Meyer has found as yet is that known as the grindstone because of its large size. It has another advantage in that it has neither seed nor stone, and the readiness with which it can be dried and transported long distances places it in a class similar to the apricot, so many thousand boxes of which are yearly sent from California to the various southern states, where this new variety of persimmon should thrive as luxuriantly as it does in China, while the persimmon also may prove an excellent substitute for the fig, which it resembles in taste.

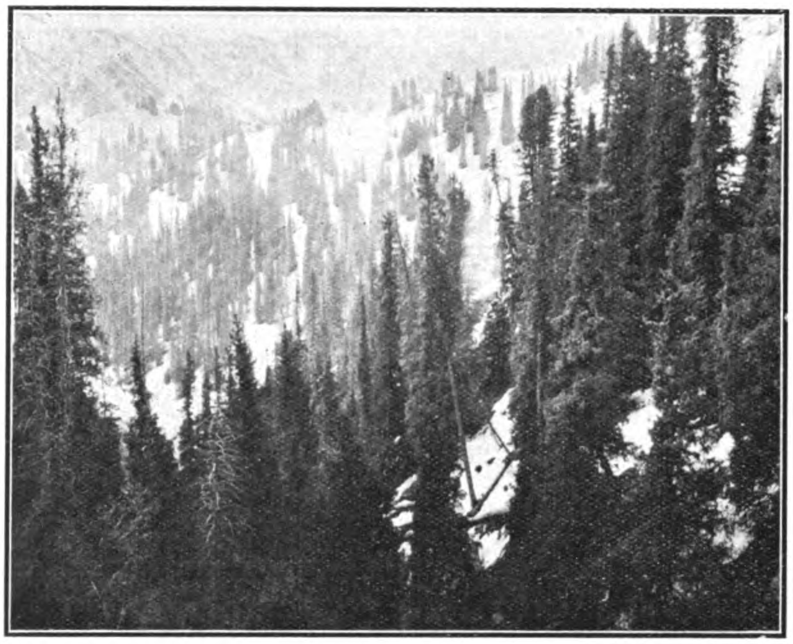
There is another discovery of Mr. Meyer which may take the place of the Arabian date. This is known to commerce as the jujube, and has been supposed to be a native of Turkey, where it is used as the base of a confection which goes into commerce in the United States as jujube paste. A peculiar variety of this fruit has been discovered, which is known as the "Mother-in-law jujube." It is found in only one place in China, in a valley in the state of Shansi, close to the border of Shensi. It is new to the world, as its growth has been restricted to this one locality, and its fruit has been highly prized because of the peculiar shape, which makes it look as if it were about to produce two fruits instead of one. It grows in a semi-arid country, and should do well in Texas, Arizona and California. Some of the other varieties are very large, one of which has a fruit the size of an egg. This variety is quite plentiful, and is made by the Chinese into a delicious preserve that compares favourably with the Persian date.

All these fruits are well enough in their way even as now grown in China, but when subjected to the skill of modern science of the United States horticulturists, the limit of varieties and hybrids that may be produced can scarcely be foreseen, and it is possible that given these wild stocks the U.S. fruit growers may produce varieties infinitely superior to any they now possess.

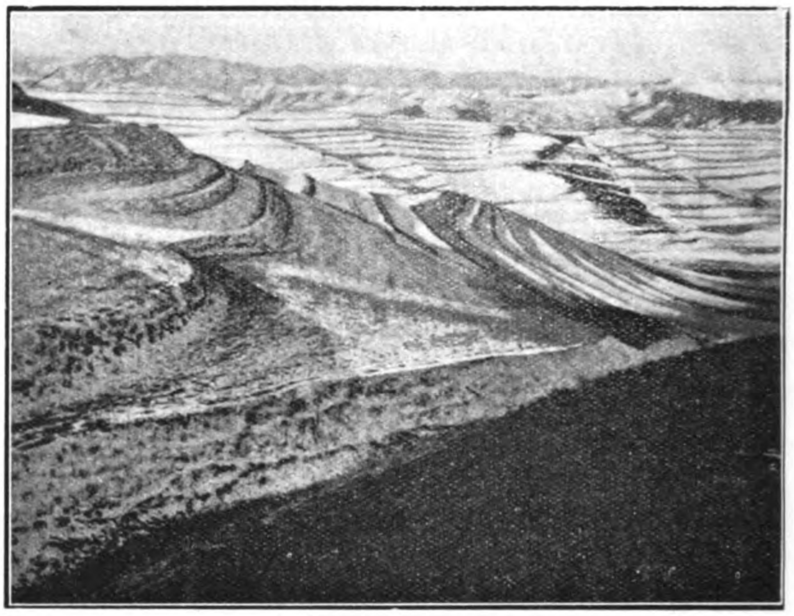
One of the boons to the housewife that Mr. Meyer's recent explorations has conferred is the odorless cabbage, which is largely cultivated in North China, and which when introduced into the markets of the temperate regions of the United States will abolish all memory of the old familiar cooking recipe that "cabbage should be boiled four hours and four miles from any human habitation," since the Chinese cabbage does not betray its presence in the kitchen and is much finer in texture and more delicious in taste than the present vegetable that forms the chief dish of the rural American's "wash-day dinner."

China's Opium Difficulty

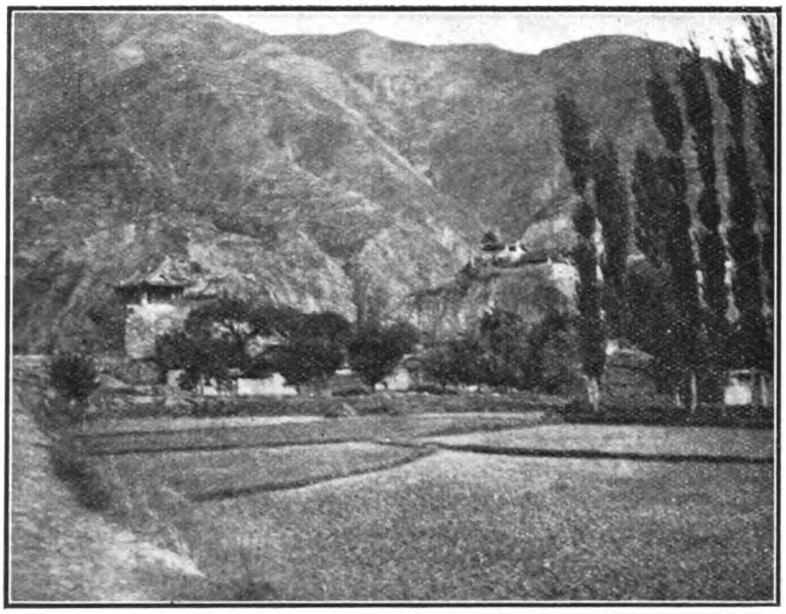
In his search for useful plants Mr. Meyer penetrated almost to the Tibetan border, and in Kansu Province he had ample opportunity of noting the difficulties that beset the Chinese Government, which has been unable to suppress the traffic in



Forested Mountains in Ili Province as yet untouched by man



Terraced Mountains in Western Kansu growing broadbeans, hulless barley, hulless oats, peas and flax, 10,000 feet above sea level



Town Gate, denuded mountains and Lombardy Poplars of Chuh-chou in Southwest Kansu

Mountains so utterly deforested that the overburden of earth has been washed away leaving bare rock ribs on which nothing will grow

Explorer's Caravan in Russian Turkestan on road from Osk to Kashgar in Chinese Turkestan

Field of Odorless Cabbage in Kansu Province

opium there. It might be mentioned in this connection that Kansu Province is on the border of Tibet, where there are many valleys as yet untrodden by the white man, the existence of some of them being practically unknown even to the Chinese who live on the eastern slope of the mountains. It is in these mountain valleys that the poppies are grown to supply the opium that is openly sold in the capital of Kansu, in whose remoter valleys the flower also is cultivated to some extent. On several occasions Mr. Meyer saw opium openly sold in front of the yamen (the government building) in Lanchowfu, the capital of Kansu, and there was scarcely a farm house in that neighbourhood that did not have poppy seed heads hung up to dry so that the seeds might later be crushed for the excellent cooking oil which they contain.

This country is quite wild and desolate for the most part, and the difficulties of the Chinese Government in suppressing the growing of opium and the traffic therein might be compared to the troubles the United States Government would have had to face if, in 1850, it had tried to prevent the Indians of the Rocky Mountains from cultivating corn or potatoes, the two regions being closely comparable as regards development and police efficiency.

Opium in Lauchowfu is sold for 1,200 cash (less than $1. U.S. Currency) an ounce, whereas in Shanghai it sells for $20. an ounce. This must not be considered as accusing Chinese officials of laxity in a matter in which so many recent edicts have been promulgated, since at every likin (internal customs) station, strict search of all packages is made for opium, with the result that only a small portion of that grown in Kansu and Tibet filters through into other provinces in China, where the growing of the drug can be more readily prohibited and the Government authority enforced.

As far as the northern border of China is concerned it would seem necessary to exterminate the population in order to do away with the use of opium.

Kansu Province is further remarkable for the intensive cultivation that is carried on upon some of its mountain sides. Here is found the highest terraced land in the temperate zone, some of the fields rising to more than 10,000 feet above sea level. Here are grown hulless barley, hulless oats, peas, flax and broad beans, and every inch of available soil is devoted to some crop or other, two or even three being grown in succession, despite the short summer season that there prevails.

Because of this intensive cultivation and the seeming determination of the Chinese to turn every inch of arable soil to some benefit has come about the deforestation of China's mountains, under which policy the farmer has destroyed in time not only the very fields for which the forests were removed, but has permitted the torrential mountain streams to carry down a large quantity of gravel, that gradually has encroached on the more fertile plains below.

But even in this China has been of value to the world and to the United States in particular, for it was while looking over some pictures of China's denuded hillsides that President Roosevelt made the remark that China could teach the world how not to do things as well as how they should be done. These photographs contributed largely towards the inauguration of the conservation movement in the United States, which has led to the preservation of so many thousand square miles of forests, which are of value not only to the future generations, but to the present as well.

During one of his journeys Mr. Meyer had occasion to penetrate into the Ili region, where owing to the exceedingly sparse population, the forests are untouched as yet, and the marked difference in the luxuriant forest growth of that region from the bare hills of the more accessible China, should be sufficient to lead the Chinese Government to inaugurate a far reaching policy of afforestation.

White Pine for Rockhill's Grave

In some of the hills of Kansu, considered to be the outer limit of Chinese civilization, the overburden of earth has been so thoroughly washed from the once forested uplands that the very ribs of the mountains, upon which no blade of grass nor shrub now may find root, are laid bare. However, despite this general lack of forests, several of China's forest trees are being transplanted by Mr. Meyer, among them one that has a sentimental as well as an economic significance. This is the white pine tree, which flourishes in semi-arid regions and is remarkable for its white bark which is accentuated by the black dead limbs, making it a striking and beautiful tree. By reason of its drought resisting qualities, this tree should aid in extending the timber supply of Arizona, Texas, New Mexico, Nevada and California, and should perpetuate the name of one of the most earnest workers for better and closer relations between the United States and China, the late minister W. W. Rockhill. It was this tree that Mr. Rockhill requested should be planted upon his grave, a request which will be carried out by Mr. Meyer on his return to the United States.

While not strictly a tree, as it is classed among the grasses, the Chinese bamboo through the efforts of Mr. Meyer has gained a strong foothold in the United States, and so widely separated experimental stations as Bakersfield, California, and Brooksville, Florida, now show big groves of this important source of paper, to say nothing of the thousand and one small uses to which it is turned by the skilful hands of the Chinese. From these two centres it is expected that the bamboo will spread over a wide portion of the United States that now grows no tree or plant of so great an economic importance.

Aside from his mistaken policy of deforestation, the Chinese farmer has many traits that are commendable, especially in view of his lack of modern scientific methods. The Chinese farmer is the father of dry-farming and although he uses rude implements that barely scratch the surface of the ground, his knowledge of the proper rotation of crops is such that his fields seldom are without something maturing in the growing season. He arranges his plantings so that while one crop is maturing, another is just pushing through the soil. To grow as much produce as possible and waste as little time about it as he can, is the ideal which the Chinese farmer attains to a degree that would surprise his Western brother whose hopes center in one crop a season and who did not know the first rudiments of rotation until barely a decade ago, although the Chinese had practiced it, as well as the green manuring or plowing under of legumes, for thousands of years.

Yet the Chinese farmer, who has arrived at the conclusions of science by empirical observations alone, has unconsciously been pursuing a process of selection and improvement of his main food crops until he has evolved many varieties that once dependent on copious supplies of water, now grow in semi-arid lands. The many varieties of upland rice which mature on less water than wheat would need to bring its grain to ripeness are examples of this unconscious process. Not only in dry farming, but in irrigation as well, the Chinese farmer as seen by Mr. Meyer on his travels, has shown himself an individual of great resourcefulness, and in some parts of China, with no other material than a handful of bamboo and a log of wood for axle, he has succeeded in erecting huge waterwheels which raise the fluid high above the stream bed to pour it upon the land. Those wheels once started need no attention and their usefulness ends only with the decay of the materials from which they are made. If the Chinese farmer, even without the aids that in the West are considered necessary for success in agriculture, can make such progress and work his land to so much greater advantage, what will he not do when he has Western science to aid? That is a question, Mr. Meyer says, which one can leave to the Chinese farmer, who is the interested party.

Explorer's Hardships in China

Although Mr. Meyer makes light of the dangers which he undergoes and the privations he must suffer, and mentions his difficulties only casually in connection with other things than his own personal comfort, yet the lot of a plant explorer is not light. He must forego not only the ordinary luxuries of life, but almost its every comfort as well. No traveler writing of China has failed to speak of the Chinese inn. It is so overwhelmingly appalling that oftentimes its discomforts so pervade

an author's pages that they spoil what might otherwise have been an interesting book. Therefore, Mr. Meyer considers himself fortunate that his journeys take him into regions where even inns often are absent and where he must depend on the canvas walls of his tent for shelter. This he does not consider a hardship, but this constant exposure, coupled with lack of other than Chinese food makes necessary a rest of several days or even weeks of recuperation after one of his trips. His diet is limited to whatever the Chinese countryside affords, since he cannot carry canned goods to eke out his fare. This is due to the high price of cartage which gradually increases the cost of food stuffs thus transported until they are worth more than their weight in silver, and a pound of silver will take a frugal minded explorer many leagues.

As to personal danger, the plant explorer does not consider it. Even when, on this last journey, he was assured that it was certain death to venture into the Thibetan mountains to the north of Kansu, he was determined to go, but while his spirit was willing the flesh of his bearers was weak and to their untutored minds, the boiling oil vats of the Thibetans were immensely more potent than the extra "cumsha" strings of cash which the explorer held out as a bribe.

Once only during his ten years in the China field has actual personal danger come close or seemed to, for even to this day, the explorer does not know whether his caravan attendants fled from real or imaginary danger. This was in northern Korea, the ancient habitat of the tiger—ten foot tigers, too, that have not become slothful or enervated by easy living as has the tiger of Bengal. As Mr. Meyer tells the story it is not so thrilling as the tale that the then American consul general at Seoul wove from the exploit. The latter's story was that Mr. Meyer was attacked by a tiger and that to escape he had to slide down a mountain side to the destruction of his clothing in his search for personal safety. The official says that the message for help read:

"Attacked by a tiger. Send me some trousers."

Mr. Meyer's statement is that his bearers heard a rustling in the underbrush and fled. He also fled and his wire for assistance was to get new bearers, the thrilling slide for life down the mountainside having been imagined by the official in an effort to relieve the tedium of a consulship in Korea.

If it had been a tiger, Mr. Meyer said he would have regretted it greatly, not because of his own possible death, but on account of the collections he was bringing to civilization which had been gathered at such infinite labor and pains that it would have been a pity, he said, to have had them fall into unusing hands. As for himself, he insists that no man can die more than once and he considers it as easy to die in the open in China as it would be to die while tending the money in a bank. So long as his collections are saved and contribute their quota to the world's wealth, the passing of the explorer does not matter. In Mr. Meyer's creed, it is the work, not the man that counts.

So far as is known, the United States Department of Agriculture is the only governmental bureau now making a systematic exploration of China's plant resources, although other powers have from time to time utilized the discoveries of travelers who were working independently. That the United States was first in the field was due to the wisdom of former Secretary of Agriculture James Wilson, whose successor has continued the policy in this as along other lines.

Probably no activity of the Department of Agriculture has produced greater returns than this introduction of new plants. While posterity will have to pass upon the ultimate value of much of Mr. Meyer's present work, one example of immediate value comes to mind, although not a discovery of the plant explorer. A consul of the United States stationed in Russia heard of a Russian drought-resisting wheat that was growing under conditions that might be paralleled in the United States. After some correspondence with the Department of Agriculture, he obtained a carload of this wheat for seed and shipped it to the United States, the total cost of securing and distributing it being less than $10,000 Gold. A few years later, the United States exported more than $2,000,000 worth of this wheat to the very district in Russia from which the seed had come. This is the now famous Durum wheat, and if the custom of erecting memorial arches to public benefactors prevailed in the North-Western part of the United States as it does in China, a fine white marble pailou would now commemorate the name of the consul who made the discovery and had the wit to turn it to the service of his countrymen.

Resources of the Chengtu District.

[Consul E. Carleton Baker, Chungking, Szechwan Province, China.]

The Chengtu district under review comprises an area approximately 100 miles square and includes such cities and market towns as Kien Yang, Lochi, Chiaokiatu, Kwaichow. Sisen, Shi Chiao, Lungchuanyi, and others of less importance. The population of the city of Chengtu, the capital of Szechwan Province, is about 500,000, while the population of the Chengtu district above described is 2,000,000.

The Chengtu district imports a larger quantity and a better class of foreign goods than any other part of Szechwan Province. There are many large shops at Chengtu that handle foreign groceries of all kinds, clothing, shoes, hats, toys, medicines, toilet articles, hardware, and various other household supplies. Foreign wines, cigars, and cigarettes are sold in considerable quantities. Small sewing machines, as well as large ones for manufacturing purposes, are readily disposed of, and cotton gins and several lighting plants have also been sold there recently.

The chief exports of the Chengtu district are hides, silk, herbs for medicine, sugar, salt, bamboo, cotton, and rice. New industries also are starting and are making considerable headway. Cotton cloth is being manufactured to a greater extent, as well as ready-made clothing, hats, shoes, and leather goods of a general character. Many of these exports are sent direct to Japan, but most of them are sold to merchants in Chungking or Shanghai, who export a certain amount.

Agricultural Resources—Transportation Facilities Inadequate.

Shi Chiao is noted for sugar, while cotton and rice are shipped largely from Lochi. Rice is grown throughout much of the Chengtu district; the same may be said of sweet potatoes, peanuts, and corn. Oranges, peaches, persimmons, pears, and other fruits are largely grown—oranges chiefly in the vicinity of Chiaokiatu. As the Chengtu plain is watered by an extensive irrigation system it can always be depended upon to supply regular and abundant crops. Wheat, rape, beans, peas, and millet are also grown as staple crops, especially on the plain; oats and buckwheat being likewise cultivated to a certain extent. Enormous quantities of vegetables are produced, chief among which are the turnip, carrot, cabbage, onion, and lettuce. Pepper, ginger, and mustard are largely used as relishes. Tobacco is extensively grown in this district and is now being employed by a foreign company in the manufacture of cigarettes for local consumption.

While there are several small waterways traversing the region under review, they are navigable for large boats only during a certain part of the year. Rail transportation is much needed, and electric lines would probably be best at the present time. American engineers who have recently visited this district state that electric roads could not only be constructed with comparative ease but woud prove highly profitable from the very beginning. Cheap water power could be obtained from the rivers, and the level character of the country would make construction extremely simple. A system of railways would stimulate industry and business to a wonderful degree and would greatly reduce the cost of transportation.

Need of Foreign Machinery.

As the district about Chengtu develops there will be an increasing demand for foreign machinery. Mining machinery is needed in the development of the region west of Kwanhsien, where lead, coal, silver, and copper deposits are said to be extensive. There is also a demand for machinery for the scientific refining of salt and sugar and for the manufacture of paper, shoes, soap, candles, and many other articles. Modern sawmill machinery will eventually be introduced. Machinery for silk and cotton weaving could be used to advantage; much of the Tibetan wool that comes from Tachienlu to Chengtu could be made into fabrics at the latter city, where labor is cheap and water power available.

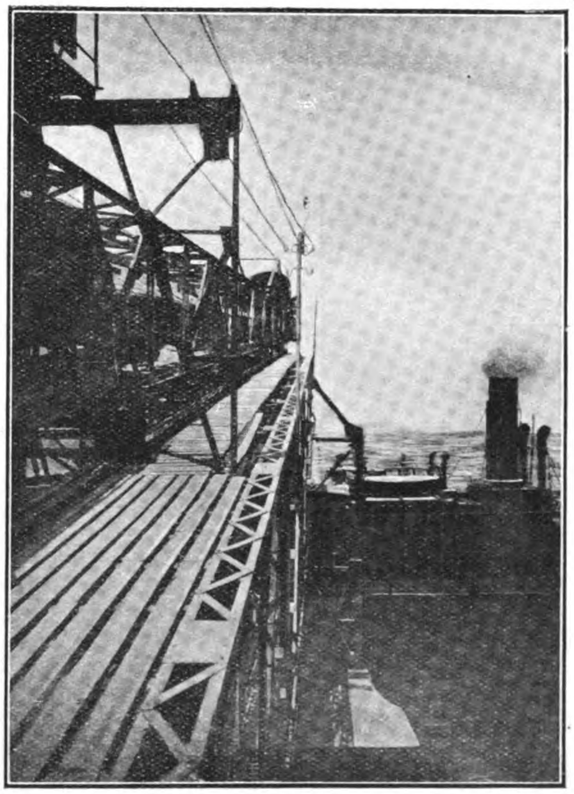
A report with regard to the possibility of introducing American machinery was published in Daily Consular and Trade Reports for October 21, 1913, and another report on this subject was sent from this office on March 16, 1914 [and appeared, as Foreign Opportunity No. 13037, in the issue for May 8, 1914]. A tannery with modern methods has already been established at Chengtu, but a larger plant is needed, and a considerable amount of foreign machinery will, no doubt, be added to the present equipment.

THE PHOSPHATE DEPOSITS OF ANGAUR ISLAND

SPOILS OF WAR OMITTED BY JAPAN FROM HER LIST OF TROPHIES GAINED BY HER CAMPAIGN AGAINST GERMAN POSSESSIONS IN THE PACIFIC

Japanese newspapers recently have contained what purported to be lists of property that had fallen into their hands as the result of the campaign that ended with the occupation, not only of the German stronghold at Tsingtau, but some of the Islands of the Pacific, Yap and its cable station, the Mariannas with their resources of copra, pearl shell and sea products, and the Pelew group with its many barren atolls that for the most part barely supported the few hundred natives who had their homes there. Perhaps this reticence as to the value of the Pelew Group was due to a desire not to call too strongly to mind the occupation of these islands by the Japanese in view of several announcements that these specks of dry land in the Pacific were to be handed over to Australia or at least not to become permanent Japanese possessions. In view of these statements, the sending of several expeditions of scientists to study the resources of the "South Sea Islands," which the newspaper accounts of the expeditions gave out as their general destination, would seem to indicate an effort on the part of the conquerors to obtain a preeminent place in the trade of the islands whether they retained the suzerainty or not.

One island which did not have to be explored and whose resources met with instant appreciation on the part of the new occupants was Angaur Island, the southernmost of the Pelew Group, which contains a phosphate deposit that is not only one of the largest island deposits in the world, but also probably the purest and most accessible to Japan. The value of this island was not underrated by the Japanese, whose imports of fertilizer materials reach an enormous annual total in bean cake and meal from Manchuria, as well as in bone and other phosphorous bearing substances. Nor did any outlay have to be made to put the island in condition for exploitation, since it had been worked from 1909 by the German Southsea Phosphate Company of Bremen, whose huge expenditures had put the industry on a paying basis only the year before the outbreak of the war, when a dividend was declared amounting to 11 per cent for the operations of the year 1913.



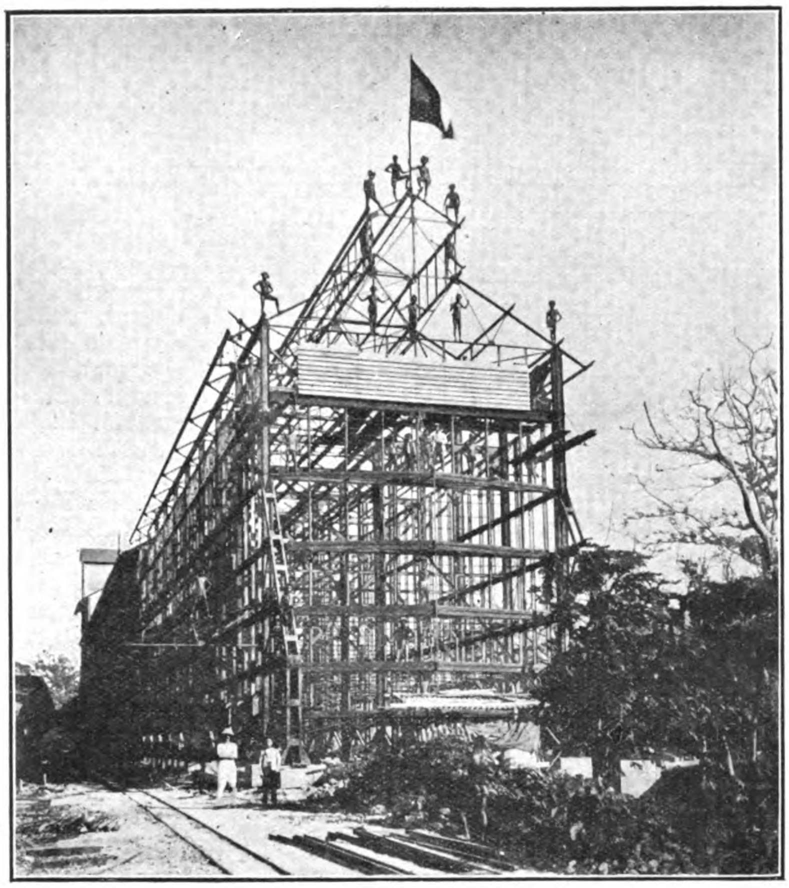
Phosphate Steamer Loading at West Cantilever

Angaur Island is located in 7 degrees north latitude and 134 East of Greenwich. It is some two and one-half nautical miles long, and averages a mile in breadth. While the average elevation above sea level is only 16 feet, a rocky knoll at the northern end is above 100 feet high. When the German company was formed in 1908, the island was densely wooded, some of the trees being remarkably beautiful, and included several varieties of banyan and the barringtonia species. Its inhabitants, numbering 150 men, women and children, were of a Malay stock mixed with Papuan blood and were thoroughly unspoiled by contact with the white race, since the island held out little inducements as a port of call for the itinerant trading vessels of the Pacific. A survey of the island had previously disclosed the existence of a deposit of tri-calcium phosphate that the first surveys proved to measure up into the millions of tons. The analyses showed its purity to be 88 or 90 per cent.

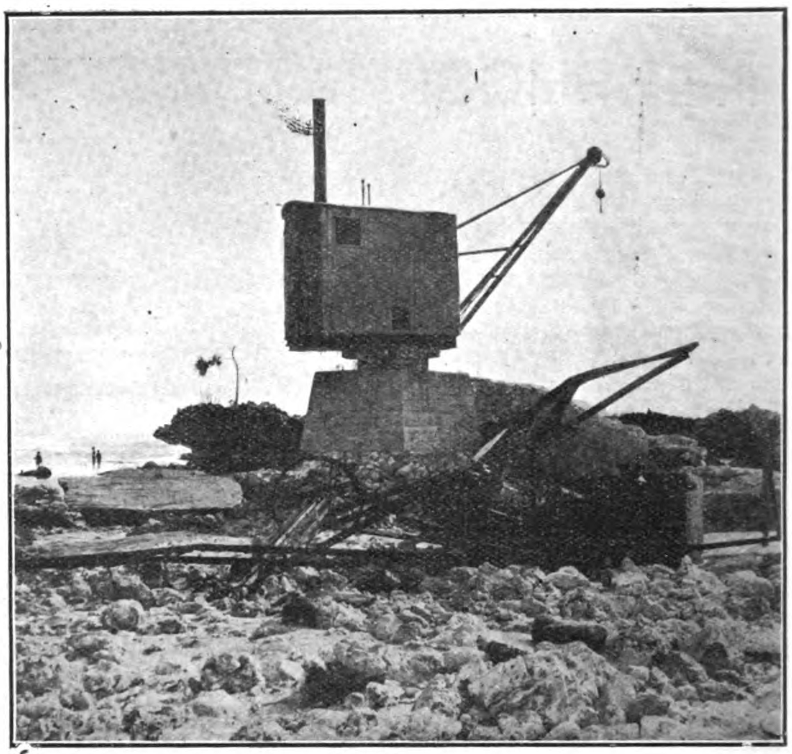
The deposit was found to lie upon pinnacles of coral rock which interfered with, but did not prevent, mining by open cut methods. After the ground had been cleared of the overburden of timber and leafmould, debris of the tropical forest growth, light railway tracks were laid from the point where the drying kilns and warehouses were to be located, and the deposit excavated in a series of benches that were gradually worked down to the level of the tips of the coral rocks, the workmen excavating around and between these spurs until the bare coral rock beneath was stripped of its last pound of phosphate material. The work was done systematically and thoroughly, and the production rose steadily from that produced by the able-bodied men among the original inhabitants until, at the time when the Japanese took possession, the output was approximately 100,000 tons, and more than 800 workmen, including 70 Chinese artisans, were employed. The first shipment was made on Christmas eve, 1909, coincident with the opening of the wireless station at Yap, so that the stockholders of the company were advised at breakfast next morning that their mine was in the list of shippers.

This result was not attained without first having to overcome serious mechanical difficulties in drying the raw material. Instead of being in a more or less rocky formation, it was found to be of the consistency of pipeclay and contained as high as 27 per cent of water. Before shipments could be made, it had to be dried down to under two per cent and this necessitated the construction of costly kilns or rotary dryers. The plant contained three pairs of huge tubular dryers whose combined output was some 700 tons a day. Even more serious was the shipping problem, for Angaur Island has no anchorage worthy the name. It is swept by almost every typhoon that arises in the group and even in windless weather, is the center of strong currents that make anchorage a matter of great danger, owing to the rapidity with which the depth of water increases close to the shore. At first, the steamers were provided with buoys to which to tie up, and these were moored in a depth of 110 fathoms although only 150 fathoms from the shore. Loading was done through open boats manned by the natives, and even these could not be loaded directly owing to the surf, but were filled by means of cantilever cranes projecting far enough to save the boats from being dashed against the overhanging rocky walls of the shore line. This system was exceedingly slow and costly and necessitated a much larger force of natives than the company was able to maintain, as recruiting labor was a slow process and one which necessitated the training of the laborer for long periods before he was able to work efficiently.

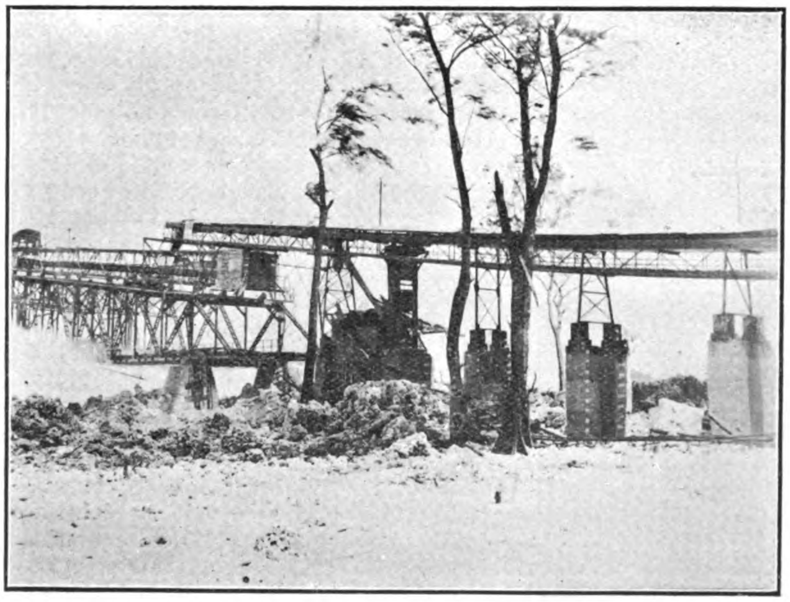
To obviate this difficulty, which was restricting the output of the island, it was determined to build a loading pier which would be practically automatic in its working, cut down labor charges to minimum and enable the tramp steamers to complete their cargoes with a minimum of delay. Here too, much mechanical ingenuity was brought into play, for there was no



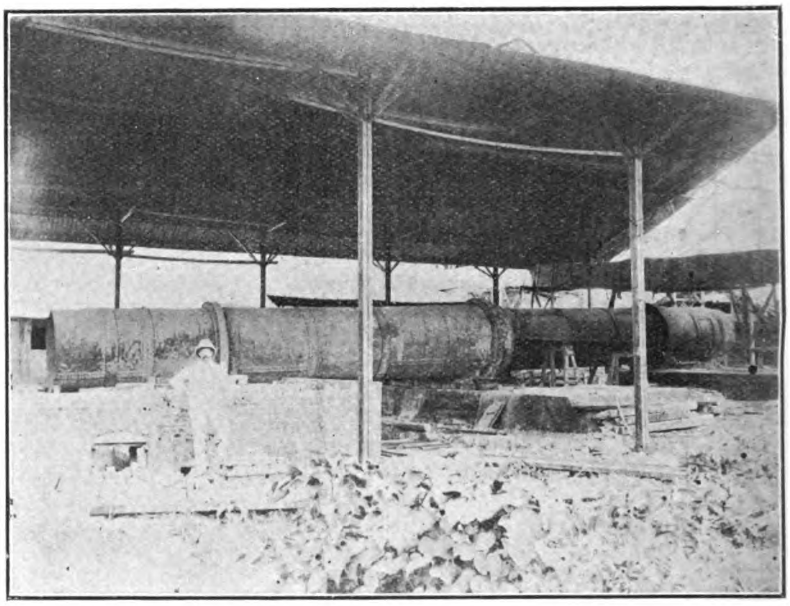
Steel Work for Phosphate Storehouse Erected by Native Labor



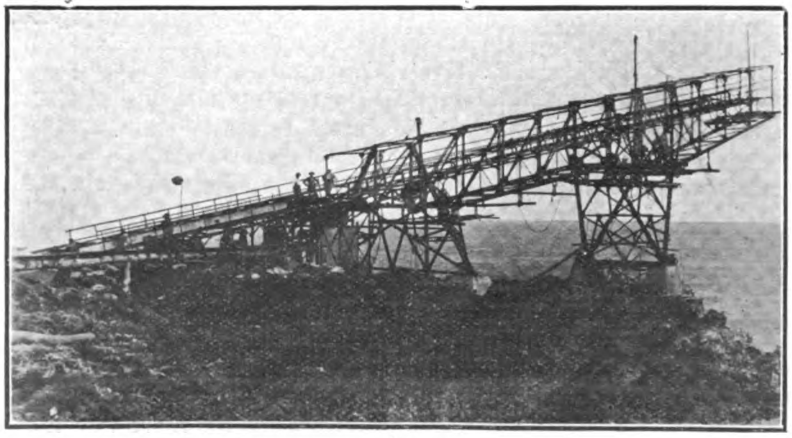
Wharf Destroyed by Typhoon with Former Loading Crane



West Cantilever after Typhoon—Beach Sand Line formerly Ran to top of Concrete Piers



Phosphate Drying Plant under Construction at Angaur Island



Loading End of East Cantilever (Unfinished)

Angaur Island Woman's Club Assembled to Meet European Guests

suitable stretch of ground that lay in a straight line with the point where the steamers could come alongside the structure with least likelihood of danger, and this necessitated building the loading structure with skew. This was for the western side of the island and, when completed, enabled the dried phosphate to be run from the storehouses upon belt conveyors out over the sea to the vessel into whose holds it was loaded through telescopic steel tubes. The system worked so perfectly and was such an improvement over the open boat method, in point of time and labor costs, that it was decided to build a similar structure on the eastern side of the island so that boat loading would be unnecessary at any season. This would obviate the difficulty caused by the peculiar weather conditions in this part of the South seas where a southwest monsoon blows from July to December and the northeast trade wind from January to July. The monsoon period is further aggravated by a rainfall which averages 146 inches a season. The second loading device was nearing completion when the Japanese arrived and ended operations so far as the German company was concerned.

The last shipment made under the German Company's direction was in July. In August the steamer Clan MacNaughton called for cargo but was compelled to leave on account of the outbreak of the war. This ship later met her dreadful if glorious end as an armed cruiser in the North Sea. In September the Australian Cruiser Sydney appeared and after destroying the wireless station, departed on her cruise in search of the Emden. Despite the cutting off of the island, the Manager of the Mine, Mr. G. H. Lippert, decided to go on with building operations and keep the mine working as long as the provisions for the laborers would last. In October, the Japanese descended upon the island and a month later, removed the German employees, of whom some 20 were on the company's payroll, taking them to Nagasaki as prisoners. They were later released and permitted to come to Shanghai.

As the island was taken by the Japanese navy and as no prize money could accrue as in the case of a captured ship, the commercially disposed among the naval men evolved a scheme whereby the island was to be declared a naval property and leased to a Japanese company which would pay an export duty on every ton of phosphate removed, this tax to go into the coffers of the navy as a war fund. This mode of disposing of a private property did not meet with the approval of the German Manager of the company's work, but his protest that this was private property and not at all engaged in the production of contraband of war was unheeded, and at last advices, the navy's plan was in full operation.

The German staff was given 24 hours' notice to leave the island which they did as prisoners of war. The reason for this haste was not apparent at the time although it has now been learned that the day after the departure came the new Japanese company's staff, some 20 men, who took possession of the houses of the former managers and after shipping the furniture of the Germans to Japan, made themselves comfortable on the floors of the rooms. In the office they broke open desks and safes, and burned part of the company's books. All stores and spare parts were gone over and those that were not immediately useful were sent to Japan. The value of these stores ran into a considerable sum as every part of the plant was in duplicate in case of breakdowns, because of the great distance from a base of supplies.

This important matter of salvage disposed of, the Japanese started to learn how to run the plant, making the former Chinese employees their teachers. Under their direction, the phosphate in store was loaded for shipment and mining actively resumed with the result that by the middle of June, six tramp steamers carrying an aggregate of 35,000 tons had been dispatched to Japan. Only those parts of the plant actually in use were cared for, the remainder, including all unfinished construction, being allowed to go to rust and ruin, a rapid process in that tropical climate.

Upwards of 120 Japanese coolies had been brought in up to June 1, and the managers are endeavoring to recruit natives to take the place of those who left when Japanese rule began to become too strenuous. They are having little difficulty as a saki plant has been set up and most of the natives are keen on spirits, which the Japanese sell indiscriminately. Liquor was forbidden to the natives under heavy penalty by the Germans, who had found that islands where white traders had exchanged spirits for native goods, were soon depopulated.

Contrary to the expectations in opening the deposit, the German Company had little difficulty in securing workers to run the locomotive engines and various other machines, nor was labor lacking for the erection of the buildings, which were of steel and sheet-iron construction, some of them of considerable magnitude. In fact, in the later years of the work, it was hard to recruit the natives of the nearby islands for anything but such work, as those from Yap invariably specified that they should be employed on machinery. Some of the natives were exceedingly quick to learn and after two weeks' training were competent to run the small locomotives that hauled the trains of phosphate from the workings to the dryer. They became so expert in steel work and even in the reading of blue-prints that when shown the position of any desired beam or girder on the print, they would note the dimensions and unhesitatingly shake it out of the tangled piles of material. Some of them were credited by the construction engineer with knowing the location of every bit of steel for the completed building before the first uprights had been erected.

LABOR LEADER WHO INTRODUCED THE FAD OF EATING DOG BISCUITS

The natives at first were found to be rather sluggish and slow in their movements and an investigation was made of their blood, revealing the presence of ankylostomum, or hookworm, with which practically every one of them was infected. This was met by the company with a systematic treatment in a hospital plant with thymol and other appropriate remedies. The natives soon saw the effect of this treatment and asked only that they be allowed to look through the microscope of the physician to see with their own eyes the worms that were swimming about in their blood. In this work, the company assisted the German government in its efforts to eradicate the disease from the whole archipelago. With the exception of one island, on which the natives murdered several German missionaries, they were peaceable as children and as long as their peculiarities were humored, were happy in the work. They showed some peculiarities of diet, one of which was an inordinate fondness for dog biscuit, in which they were abetted by one of the recruiting natives who cornered the market of this delicacy, retailing it for the equivalent of six-pence a cake.

The latest estimate of the amount of available phosphate on the island fixed it at 4,000,000 tons and as this was worth on the outbreak of the war some 60 shillings a ton, the island has a potential value of £12,000,000. It was the expectation of the company, that nearly double its dividend could be declared in 1914 and future returns be at even a higher rate, so that the value of this asset as spoils of war is sufficient to warrant its inclusion in the list of trophies to which the enterprising Japanese claims to have acquired title, temporary at least, through his investment of Tsingtau. As to the present disposition of Angaur Island, it would appear that the Australian forces who destroyed the wireless station were entitled to some share in the profit that is now going to the Japanese navy under the agreement with the company of its own nationality.

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CONTENTS

	PAGE
China's Plant Resources	41
Chengtu District of Szechwan Province	48
Phosphate Deposits of Angaur Island	49
Progress of China's Railways	52
Resources of China	53
Far Eastern Championship Games	56
Philippine Trade for 1914	58
The Waterworks of Swatow	61
Improvements at Peking	64
China's Salt Tax Financial Statements	68
Commercial Cars Auto Repairshop	71
Chinese Walnut Industry	72
Glass Factory at Poshan	72
Engineering and Financial Notes	73
Index to Advertisers	79

PROGRESS OF CHINA'S RAILWAYS

Sweeping changes have recently been made in regard to the management of many of the most important of China's operating railways. Special interest, therefore, attaches to the record of progress made by these lines and in the general administration of railways in China in the last few years. With the exception of the Peking-Kalgan line and its extension and one or two short lines the railways in China were built under the supervision of foreign engineers-in-chief, and are operated with the assistance of foreign engineers, accountants, and, in some cases, general managers. As a rule there is a Chinese Managing Director who is responsible to the Ministry of Communications for the working of the line under his control.

The Peking-Mukden Railway was the first important line to be operated in China. Although opened to traffic some time before the Boxer Outbreak in 1900, the official statistics that are available begin with the year 1902-03. The net earnings in that year were approximately 5 per cent. on the capital cost. The following year they were over 7 per cent. of the capital cost and the rate of progress thereafter was as follows. 1905, 20.89; 1906, 18.25; 1907, 13.04; 1908, 16.67; 1909, 20.40; 1910, 15.53; 1911, 16.70; 1912, 19.50; 1913, 18.58. The net revenue increased from $3,403,933 in 1904 to $8,817,942 in 1913. This is undoubtedly a magnificent record. During the ten years ended 1913 the railway has been earning a net revenue equal to about 17 per cent. on the total capital investment. The management of the railway has always made a point of charging expenses for maintenance and additions and betterments to revenue to the greatest possible extent, so that the results indicated are, if anything, too conservative. The mileage of the main line is 523 and branch line 84. A point about this railway that deserves notice is the excellent condition in which the permanent way and the rolling stock has been maintained.

The Peking-Kalgan, or, more properly, the Peking-Suiyuan, line is, as already remarked, the only line of importance that was financed with Chinese capital and built by Chinese engineers. From Peking to Suiyuan is about 400 miles, but the line is as yet only open for about 200 miles. The railway connects with the Peking-Hankow and Peking-Mukden systems at Fengtai, near Peking. Great engineering difficulties were encountered in constructing the section from Fengtai to Kalgan, much tunnelling, cutting and bridging being necessary. The fact that only a portion of the line is open to traffic has to be borne in mind when considering the financial results that have been attained. The section of the line from Kalgan to Changsui was only opened in 1913, so the following figures are only for about 125 miles, the section between Peking and Kalgan. This section was opened to traffic in 1909, but it did not begin to earn profits until the following year when the net revenue was $75,395, or one per cent, of the capital cost. In 1911 the net revenue was $508,794, 6 per cent. of the capital cost; in 1912 $1,289,670, 17 per cent. of the capital cost, while in 1913 the net revenue had increased to $1,567,370 which represents 20 per cent. of the capital cost. These excellent results are likely to be considerably improved when the full length of the railway is open to traffic. That this line is being economically handled is shown by the fact that in 1913 when the gross revenue was $2,865,394 the operating expenses, including all charges for maintenance, were $1,298,024.

The length of the Peking-Hankow Railway is about 800 miles. It was begun in 1897 and opened to traffic in December, 1905. This line, which is one of the most important in China, will eventually be linked up with the Hankow-Canton Railway and thus render possible rail transportation from the South of China to Europe. The earnings of the line were affected by the Revolution and the rebellion in 1913 when for long periods it was largely employed for military purposes. Even when it was not being so used the disordered and dangerous conditions that prevailed reduced passenger and freight traffic to a very considerable extent.

The following table shows the financial results attained by the Peking-Hankow Railway in the five years beginning 1909 and ending in 1913.

Year	Operating Revenue	Operating Expenses	Net Revenue
1909	$11,114,514	$6,849,557	$4,265,057
1910	12,242,858	7,341,907	4,900,951
1911	11,398,460	8,563,249	2,835,211
1912	13,656,618	7,356,457	6,300,161
1913	16,774,794	9,226,203	7,548,591

Detailed figures for the period under review in regard to the Tientsin-Pukow and some other operating railways are not immediately available, but the operating results of all the railways in China, as shown by an official return prepared by the Ministry of Communications, are highly favourable. The following table shows the operating results of all railways completed by 1909 for five years.

Year	Operating Revenue	Operating Expenses	Net Revenue	Proportion of net Revenue to total Capital.
1909	$27,117,820	$17,780,915	$ 9,336,905	4. 6 %
1910	29,149,691	18,273,079	10,876,612	5. 4 %
1911	28,185,699	19,673,162	8,512,537	4. 2 %
1912	34,782,513	18,687,967	16,094,546	8. 0 %
1913	39,420,686	22,774,523	16,646,163	8. 3 %

It has to be borne in mind that in many cases the revenue is derived from short sections of incomplete systems, and that consequently much better results can be confidently expected in the future if the recent change in management does not prove detrimental.

Passing from the earnings of the railways, it is of interest to consider what has been done to improve the general administration. Owing to the unique conditions in which China's railways were built and are operated, the work of systematizing the administration of the railways has presented extraordinary difficulties. As an illustration, the compilation of railway accounts and statistics, obviously a matter of the very first importance, was carried out by the officials of each railway in the manner that they personally deemed the best. The systems of accounts that were in vogue were the English, Indian, Belgian, German, Japanese and Chinese, and in some cases the railway administration changed the system from year to year. The financial year of different railways ended on different dates. As a result it was next to impossible to determine the actual condition of the railways and the progress they had made at the end of each year. The confusion caused by this lack of system was recognised by the Republican Government and steps were taken to secure uniformity. A commission consisting of experienced accounting officers of the Central Government and the chief accountants of the existing railways was appointed in 1913 to prepare a scheme for the unification of railway accounts and statistics. Dr. Henry C. Adams, the well-known American expert, was appointed adviser. After very exhaustive investigations the Commission was able to propose a system of accounts and statistics specially adapted to the needs of the country, which met with approval and was put into operation. The benefit of this uniform system has already been felt, and its advantages will become still more apparent as time goes on.

Unification of engineering standards is also recognised to be highly desirable and steps are being taken in this direction. The same causes that operated to create diversity in the accounting systems has prevented any uniformity of engineering standards. Readers of the Far Eastern Review will recall our constant allusions to the imperative necessity of the adoption of a definite standard.

Among other reforms that have been carried out, one of the more important was in regard to through traffic. Passengers and goods may now be transported from any point on any one of the connecting lines to that of any of the other lines, thus bringing China in line with other countries. Through traffic arrangements have been made not only between lines in China, but with International Railway Managements. Considerable improvement has also been made in the passenger accommodation on the railways, particularly in regard to the third class passenger coaches.

Much has been accomplished and much more would have been done had not progress been checked by the stringency of funds. Speaking broadly it may be said that all reforms cost money and, unfortunately, the circumstances of the country prevent more than a limited proportion of the railway earnings being spent in administrative reforms. But, nowithstanding the financial difficulties, good results can be achieved by steady adherence to a settled policy. The factor that would be most likely to prevent effective reform would be the importation of politics into the railway administration. The railway should be run as a business concern and the best qualified men employed and given reasonable security of tenure in their posts. Many reforms can only be carried out gradually after patient investigation extending over long periods. The necessity for such reforms is recognised as a result of experience and it is, therefore, essential that responsible officials should, as far as possible, be maintained in their positions in order to obtain the best results from their activities. An official's interest in his work is largely dependent upon the knowledge that he is likely to be permanently associated therewith, and encouragement to suggest and carry out reforms is given by the belief that such reforms will be accomplished under his observation and direction.

THE RESOURCES OF CHINA

The Work of the Newly-Created Commercial and Industrial Commission.

In almost every standard work relating to China, the greatest stress is laid upon the "illimitable resources" of the country. Occupying nearly a twelfth part of the land surface of the world, with every variety of climate, and possessing a vast population of frugal and unremittingly industrious people, the word "illimitable" seems hardly misplaced. But, although Chinese and foreign writers have joined in inviting the world to wonder at the vast resources of China, they have invariably dealt in generalities. The industry of the people, the wealth of minerals, the variety of agricultural products, have been referred to in general terms, but it may safely be said that there is less specific information available about the resources of China than of any other country of importance.

An essential preliminary to the proper development of the productive industries of China is systematic investigation and tabulation of all obtainable data. The importance of beginning this work at the earliest possible moment was recognised by His Excellency Chow Tze-chi, the Minister of Commerce, Industry and Agriculture, and upon his initiative the President has approved the establishment of the Commercial and Industrial Commission to which reference was made in the last issue of the Far Eastern Review. The proposals made by Mr. Chow Tze-chi and approved by the Government were designed to confer upon the Commission sufficient power to collect and disseminate information calculated to improve China's industrial condition. The creation of this Commission with ample powers is one of the healthiest signs of progress that the Republic has yet given and there is every reason to expect that it will achieve results that will conserve and increase the wealth of the country and thus firmly establish the base for political development, improvement and consolidation. The wealthiest countries in the world are those which have paid the most sedulous attention to the collection of data relating to their industries and commerce and have thus been enabled to direct the energies of the people into the most productive channels. That China has adopted a similar policy is a proof that the irrational conservatism of the past has been abandoned, and that the most important of all her Ministries has adopted the modern methods that have brought success and prosperity to the leading industrial nations of to-day.

In view of the importance of the Commercial and Industrial Commission it is desirable to explain in detail its organization

and objects. As mentioned in the last issue of the FAR EASTERN REVIEW, it is composed of three main divisions which are under the direct supervision of the Chairman and Vice-Chairman who compose the Executive Committee. The work of the three divisions will be divided by allotting one division to each member of the Executive Committee to receive his special attention and direction.

The Chairman of the Commission will be the supervising Commissioner of the division of commercial and industrial exhibits; one Vice-Chairman the supervising Commissioner of the division of commercial and industrial information, and the other the supervising Commissioner of the division of commercial and industrial experimentation.

The general affairs department will be under the direct supervision of the supervising Commissioner of commercial and industrial experimentation, and this department will be composed of the following three sub-divisions—(a) Managerial, (b) Treasurial, and (c) Secretarial.

For the present, work has been confined to the division of commercial and industrial information and the general affairs department. It has been deemed wise to organize one department at a time, and with the approval of the Executive Committee the division of commercial and industrial information has had the sole attention of all those connected with the work of the Commission.

The division of information is under Mr. Chang Ying-hau, who is the chief of the division, having been appointed by the Ministry. Mr. Chang Ying-hau is a man of wide experience in business and has for the past six years been connected with the Ministry of Commerce in the department of commerce and industry. He received his training in the Commercial College in Tokyo, and was for some time President of the Normal College in Paotingfu. He relinquished this position to enter business, and later accepted a post with the Ministry.

The division of information has for the present been divided into eight sections as follow.—(a) Domestic commercial and industrial companies, (b) Foreign commercial and industrial companies, (c) Organization, (d) Exports and Imports, (e) Banking and Accounting, (f) Mining, (g) Transportation and Taxation, and (h) the Secretarial. It is hoped that each section will be built up by means of a competent staff trained to the special work of the respective sections.

The Executive Committee has decided to undertake in the first instance most detailed investigations in the Province of Chihli. It is very hard in China to secure needed information, and a great many experiments will have to be made as to the best methods to be adopted for disseminating the information when obtained. It is believed that all methods proposed to be adopted by the division of information can be tested in Chihli and any changes that are found desirable can be made, so that the Commission will be in a position to know how to handle the other provinces.

This will be by no means the only work of the division of information, as this division will take up questions relating to all industrial matters throughout China. The division of information is now undertaking the compilation of a business directory for the province of Chihli, classifying the different commercial and industrial enterprises and also giving the names of the President and general manager of each, together with the capital. This work is being undertaken by the section of foreign and domestic commercial and industrial companies. Letters have been sent out to all of the Chambers of Commerce as well as Hsiens in Chihli to furnish complete lists of shops in the cities and towns of their respective districts.

The section of transportation and taxation has already undertaken investigations into the means of transportation through the province of Chihli, and is also preparing a schedule of federal and local taxes of all classes of articles.

The section of exports and imports has started its work of classifying foreign imports and looking into the distribution of same throughout the province. The export trade of this province is also being investigated with a view to getting data, as nearly as possible correct, in regard to the marketable products of the province, not only for foreign export trade, but for inter-provincial commerce.

The section of organization has compiled a list of all Chambers of Commerce, guilds, associations for the promotion of commerce and industry, technical schools and all schools having technical courses in the province of Chihli. It is hoped that encouragement can be given to all organizations for the development of native trade by furnishing them with the latest and most up-to-date knowledge relative to modern business enterprise. The Government have realized the deficiency of schools having technical courses, and it will be the business of this section to encourage by every means possible technical education throughout China, but for the present in the province of Chihli.

The section of banking and accounting has not as yet taken up its work, but it is hoped in a very short time that the Commission will be able to have this section actively engaged in an educational campaign. This section was created with a view of disseminating knowledge among the mercantile bodies as well as individuals engaged in trade, that is conducive to a better understanding of the facilities afforded trade by the use of the modern banking system and proper accounting. As pointed out in a previous edition of the REVIEW the matter of proper accounting is of the most vital importance to Chinese trade. For the present a purely educational campaign will be conducted, and forms showing most up-to-date practice in accounting will be sent to each and every business man in the province. It is felt that the Government will be able to impose regulations in regard to accounting as soon as the people are thoroughly conversant with the more modern means of keeping their books.

The work of the division of information is under Mr. Roy S. Anderson, who is supervising commissioner and represents the Executive Committee in its relationship to this division.

In the division of experimentation, work is being done for the present in the way of equipping a suitable laboratory for scientific investigations, and this division is under the direction of Mr. Wu Kwan-sze, who was educated in Belgium, France and Italy. Mr. Wu is a son of Mr. Wu Chung-lien, the former Minister to Italy and at present adviser on foreign relations in the President's Office. Mr. Wu is considered one of the most capable young man in his line in China, and in a future edition of the REVIEW he will outline the work to be undertaken by his division, which is under Mr. Chang Shin-wu as supervision commissioner.

The Government have undertaken to have an Exposition for Home products in Peking on October 10, with a view to adding to the collection of commercial and industrial exhibist at present contained in the museum for this purpose attached to the Commission. Mr. Yung Tao is the President of the Exposition and is also the supervising commissioner of the division of commercial and industrial exhibits, being one of the Executive Committee as well as Chairman of the Commission. Mr. Chen Chai, the chief of the department of commerce and industry in the Ministry, is the Vice-President of this Exposition, while Mr. Tu Thung-peng, the chief of the division of commercial and industrial exhibits, will be the General Manager of the Exposition. Mr. Tu has been in charge for some time of the commercial and industrial museum attached to the Ministry, and is especially fitted for the work as chief of the division. It is hoped that with the start given by the National Home Products Exposition the Commercial and Industrial Museum will be greatly enlarged and will become a more efficient representation of China's industries. While home products will be of the first importance, the Commission intends to make every effort to get foreign firms abroad who so desire to place articles in the Exposition with the hope of stimulating the Chinese to an appreciation of the advance made by foreign countries in commercial and industrial enterprises.

Under the direction of the Executive Committee, there will also be a section of translation and a section of statistics. It is hoped that the services of most efficient men will be secured for these two sections. For the present, in the section of translation, attention will be given to the following languages—English, French, German, Japanese, Italian and

Spanish. The section of statistics will be modelled upon the most modern lines, and specially trained men will be employed in this section.

Most up-to-date methods of office filing and indexing will be used throughout the office, and the Commission has prepared a system for filing for the use of Chinese documents which will undoubtedly prove of the greatest benefit, not only to the work of the Commission, but also to the various departments of the Government. It has been determined that the Commission will work out an office system which will from time to time be improved, in order that the Government may not only benefit by the information received through the work of the Commission, but also from the system used in their office management.

The Commission will undertake to recommend to the Ministry and to the Government all who have rendered special service to the Government and to the people through their efforts to advance the commerce and industry of China. Individuals so recommended will receive from the Government decorations which will be awarded by the Central Authorities with the approval of the President in order to encourage commerce and industry.

The Commission as at present organized consists of a Chairman, two Vice-Chairmen, four Department Heads of the Ministry and the Councillors of the Ministry. From time to time, others from the various provinces will be appointed as members of the Commission.

The regulations for the organization and operation of the Commission as approved by the Government follow.—

REGULATIONS FOR THE COMMERCIAL AND INDUSTRIAL COMMISSION

The Minister of Agriculture, Industry and Commerce (His Excellency Chow Tze-che) submitted the following memorial to the President on June 10, 1915, for the establishment of a Commercial and Industrial Commission:

"Commerce and industry can never be developed without the assistance and encouragement of the Government, which should endeavor to make investigations. Since the Ministry of Agriculture, Industry and Commerce is the chief organ of the Government for the development of commerce and industry, I, Tze-chi, have been most diligent in making investigations. Many plans have been under consideration, but very little has been done in the way of securing results. I have recently planned for the institution of united effort for the development of commerce and industry. It is hereby proposed that a Commercial and Industrial Commission be organised. This Commission shall have three main divisions under its direction and control: (1) Division of Commercial and Industrial Experimentation; (2) Division of Commercial and Industrial Exhibits; (3) Division of Commercial and Industrial Information. With the establishment of such a Commission the work can be greatly expedited.

"Since the establishment of trading relations between our country and foreign countries there has been practically no progress made in the advancement of commerce and industry in China. A close study of the market for Chinese silk and tea for the past ten years will reveal the real cause of our failure. In the preparation of our tea for exportation we have given no attention to either the color or the taste, and both being inferior to foreign teas we have been unable to capture the foreign markets. We have given but little attention to the proper manufacture of silk, and it has been impossible to place our present products in any large quantities on the foreign market.

"In all other lines of marketable goods we have made mistakes. These mistakes are largely because of the ignorance of the merchants who establish enterprises for commercial and industrial purposes without having the requisite technical knowledge to make for success. For this reason it has been impossible to promote commerce and industry. There is sufficient capital in China for investment in paying enterprises, but there are no trained men to handle such capital. There are no large commercial and industrial concerns that stand between the Government and the people, therefore, the foreigners have controlled the trade. The commerce and industry of this country are in an infant stage. Wealth is being lost because no concerted effort is being made to advance domestic commerce and industry.

"It shall be the duty of the Commission to collect from all quarters of the country such information and knowledge that will assist in the promotion of home industry. There shall be established divisions to undertake the collection of information, make experiments and build up a permanent commercial and industrial exhibit. By doing this both the Government and the people will be greatly benefited. We hereby submit a set of regulations containing forty-eight articles for the governing of the work of a Commission, and as soon as the regulations have been approved a Chairman and two Vice-Chairmen shall be appointed at once to organise the Commission."

To the above Memorial the President on the 8th of June replied as follows:

"The proposals contained in the Memorial are hereby approved and the regulations are kept here."

REGULATIONS GOVERNING THE WORK OF THE COMMERCIAL AND INDUSTRIAL COMMISSION.

PART I. General Outline.

ARTICLE 1.—For the development of commerce and industry in China the Ministry of Agriculture, Industry and Commerce propose to organise a Commercial and Industrial Commission.

ARTICLE 2.—The Ministry of Agriculture, Industry and Commerce have submitted a Memorial to the President for the formation of the Commission. The Memorial is appended.

ARTICLE 3.—In order to do the work called for in Article 1, there shall be established three divisions to carry out the work of the Commission: (1) Division of Commercial and Industrial Information; (2) Division of Commercial and Industrial Experimentation; (3) Division of Commercial and Industrial Exhibits. Each Division shall have its own duties to attend to, and these duties shall be outlined in Parts II, III, and IV of this set of Regulations.

ARTICLE 4.—The Commission shall organise a General Affairs Department including a managerial section, a secretariat and accounting sections.

ARTICLE 5.—For the proper handling of reports and correspondence there shall also be organised a Translation Section.

ARTICLE 6.—There shall be organised a Statistical Section for the preparation and care of statistics.

ARTICLE 7.—Each Division shall be under the direction and control of a Division Chief. Each Division shall have assistants as required and these shall be known as Sectional Chiefs. All work connected with copying shall be attended to by copyists who shall be furnished to each Division.

ARTICLE 8.—The Officers of the Commercial and Industrial Commission shall be as follow:

Chairman; Two Vice-Chairmen; Commissioners.

ARTICLE 9.—The Chairman shall have the duty of undertaking all work connected with the business of the Commission in its relationship to the Ministry of Agriculture, Industry and Commerce. The Vice-Chairmen shall have the duty of directing and controlling the work of the various divisions of the Commission.

ARTICLE 10.—The Chairman and Vice-Chairmen shall be appointed by the President upon the recommendation of the Ministry of Agriculture, Industry and Commerce.

ARTICLE 11.—The Commission shall bring up and discuss all questions relating to commerce and industry. The Commission shall be composed as follows:

(A) The Commission shall be appointed by the Ministry of Agriculture, Industry and Commerce.

(B) The Commission shall be composed of men with commercial and industrial experience, and shall be selected in the following manner:

(1) From graduates of technical schools—both at home and abroad.

(2) From men who have made a success in commercial and industrial life.

ARTICLE 12.—The Chiefs of the three Divisions shall also be termed Commissioners.

ARTICLE 13.—The Sectional Chiefs shall also be eligible to a seat in the Commission if invited by the Executive Committee of the Commission. (The Executive Committee shall be composed of the Chairman and Vice-Chairmen.)

ARTICLE 14.—Any matter considered as worthy of discussion in the effort to advance commerce and industry shall be proposed for discussion by members of the Commission either by some member of the Commission or by the merchants.

ARTICLE 15.—If in the opinion of the Commission there is need for the change of any law or for the compilation of any new law for the regulation of commerce and industry the Commission shall have the right to make such changes and prepare such laws, which shall be sent to the Ministry for approval.

ARTICLE 16.—The Commission shall have a conference at least once a month for general discussion of matters relating to the commerce and industry of the country.

ARTICLE 17.—The Commission shall have access to all documents belonging to the various Departments of the Ministry of Agriculture, Industry and Commerce.

ARTICLE 18.—If the Commission desire they may secure information from the various Ministries and from merchants through the Ministry of Agriculture, Industry and Commerce.

PART II. Division of Commercial and Industrial Experimentation

ARTICLE 19.—The Ministry of Agriculture, Industry and Commerce shall appoint a Chief of the Division, who shall have the direction and control of the work in his Division under the supervision of the Chairman.

ARTICLE 20.—The Division of Commercial and Industrial Experimentation shall be composed of four Sections:

(1) Analysis, Experiment and Examination.
(2) General Chemical Experiments and Investigation.
(3) Ceramic experiment and investigation.
(4) To give technical advice.

ARTICLE 21.—Each Section shall have a Sectional Chief and from one to three assistants who shall be experts.

ARTICLE 22.—The merchants or those desirous of having scientific advice from the Sectional Chiefs of the Division shall upon payment of a fee covering expense of investi gation be accommodated.

ARTICLE 23.—If any person should need the service of an expert of the Division to look into any matter requiring scientific advice and direction the expert shall be allowed to go, granted the person seeking the service of the expert shall pay all of his expenses.

ARTICLE 24.—It shall be the duty of the Division to train experts, and when necessary to send men to foreign countries to receive special training.

ARTICLE 25.—The Division may establish experimental stations in those places in the various Provinces where such stations may be of value.

PART III. Division of Commercial and Industrial Information

ARTICLE 26.—The Ministry of Agriculture, Industry and Commerce shall appoint a Chief of this Division to control and direct the work of his Division under the supervision of the Chairman.

ARTICLE 27.—The duties of the Division shall be as follow:

(1) Making investigations in regard to the commerce and industry of China and foreign nations.

(2) To disseminate all useful commercial and industrial information.

(3) To assist merchants in making the proper trading connexions.

ARTICLE 28.—The Division shall collect information and make investigations with the assistance, when necessary, of local officials, Chambers of Commerce, and Consuls in foreign countries. When such assistance is found to be inadequate the Commission shall have the right to send persons to carry on such investigations as may be deemed necessary.

ARTICLE 29.—In carrying out the work of Section 2 in Article 27 the Division may resort to means as stated in Articles 17 and 34.

ARTICLE 30.—In carrying out the work of section 4 in Article 27 the Division may use the means as stated in Article 18. Notification should be made to the Ministry of Agriculture, Industry and Commerce.

ARTICLE 31.—The Division of Commercial and Industrial Information shall have two main sub-divisions as follows:

(1) Special Information.

(2) General Information.

ARTICLE 32.—Each Sub-Division shall have from one to five assistants who shall be known as Sectional Chiefs.

ARTICLE 33.—It shall be the duty of the Division to give especial attention to the exports and imports of raw and manufactured material. All work requiring special information shall be allotted to the second sub-division, and all work of securing general information to the first sub-division.

ARTICLE 34.—All inquiries as to technical information shall be answered by the Division if the information needed is possessed by the Division, otherwise the queries shall be referred to the Division of Commercial and Industrial Experimentation for answer.

ARTICLE 35.—The Division shall make immediate reply to all queries from merchants in regard to any subject that does not need special examination.

ARTICLE 36.—In case the Division finds it necessary to make any special investigations in answer to queries from merchants the Division shall send a special man to investigate and the expenses shall be defrayed by the merchants sending in the queries.

Article 37.—The Commission shall invite merchants possessing special knowledge to act as honorary members of the Division of Commercial and Industrial Information.

PART IV. Division of Commercial and Industrial Exhibits.

ARTICLE 38.—The Ministry of Agriculture, Industry and Commerce shall appoint a Chief of this Division, who shall have the direction and control of the Division under the supervision of the Chairman.

ARTICLE 39.—The Division of Commercial and Industrial Exhibits shall have two main sub-divisions:

(1) To collect material from abroad and at home for the Museum of Commercial and Industrial Exhibits.

(2) To arrange for exhibit all articles received, and to care for their proper protection.

ARTICLE 40.—Each Sub-Division shall have from one to three assistants who shall be known as Sectional Chiefs.

ARTICLE 41.—There shall be a person to care for the Museum.

ARTICLE 42.—At the end of each year a complete catalogue of all articles on exhibition shall be prepared and sent to the Ministry of Agriculture, Industry and Commerce.

ARTICLE 43.—The Commercial and Industrial Museum under the Division of Commercial and Industrial Exhibits shall have a system of exchanges with other museums, and the Division shall establish exhibits in the towns and cities of various Provinces when deemed necessary.

ARTICLE 44.—Any visitor to the Museum shall be shown about by a "museum guide."

ARTICLE 45.—A National Exhibition of Commercial and Industrial products shall be held once a year.

ARTICLE 46.—Awards shall be made to those exhibitors who show Products of especial merit.

PART V. Miscellaneous.

ARTICLE 47.—The Commission together with its various Division Chiefs shall make up the programme of work.

ARTICLE 48.—The Regulations shall be enforced upon official promulgation.

THE FAR EASTERN CHAMPIONSHIP GAMES AND THEIR NATIONAL SIGNIFICANCE

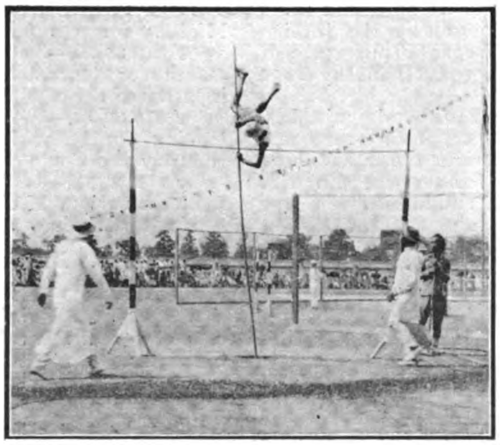
BY ARTHUR SHOEMAKER PHYSICAL DIRECTOR TSING HUA COLLEGE

Only a decade has passed since China was convalescing from an acute attack of anti-foreign indigestion. Her elaborate system of body gymnastics and fighting charm as developed by the Boxer organization, had met with utter failure when matched against the more modern methods of warfare.

The subjects of modern physical training and track athletics and games were practically unknown in China, besides all physical sport and exercise was officially tabooed as an occupation invented for coolies only. Little did China dream at this time of ever countenancing her sons developing their bodies or engaging in such menial pastimes as physical sports. Still further removed was the idea of China as a nation competing in friendly International athletic competition. But the miracle has been performed, and this year China has taken the leadership among the countries of the Far East in feats of athletic skill and prowess.

Under the new Governmental régime, China is emerging from behind the veil of conservatism and superstition and has already matriculated in the school of modern science, education and industry. This is a most encouraging sign of progress, and moreover, it is a courageous step, when we think of her vast ages of schooling under a selfish despotic Governmental rule.

The first competition in athletic sport and games of National importance, along modern lines, took place at Nanking in the Fall of 1909, in conjunction with the National Industrial Exposition. Invitations were mailed by the committee in charge of the games, to all the Government and mission schools in China, asking them to send representative teams to take part in the First National Track and Field Sports and Games. About 150 athletes were finally assembled and a successful meet was concluded. The Shanghai Sectional team carried off first honors with the North China Sectional team not far behind. The games amused and created much interest among the thousands of Chinese who saw them, and the newspapers gave them prominent space and favorable comment. It was the general feeling then that this was a real beginning along this line.



Chinese Winning Pole Vault

At the instigation of the Peking Athletic Association, the Second National Championship Games were held at Peking in the spring of 1914, inside the Temple of Heaven enclosure. In this beautiful old historic place, where the Emperors (Sons of Heaven), from the time of the Ta Mings, came annually on the First Moon of the Fall Season, to offer up to the God of Heaven in a formal burnt offering, the great book of all the recorded deeds of the past year, here 250 brawny celestial athletes had assembled to vie with each other in feats of modern Track Athletics and Games. Indeed it was an impressive picture with the great round dome of the Altar of Heaven rising above the long avenues of virgin evergreen trees that formed the background of this the modern athletic stage. Placing the two motives side by side, the old and the new, one the beginning of a new record sheet under the old régime, the other representing the awakening of a new manhood in China under a new régime; here was a picture full of significance as well as a picturesque one.

I don't believe any one had ever thought about this interval between the first and second National Games as being an Olympiad. Why not carry this Olympiad idea out in celebrating the National Games of China and set the next date for 1917?

These second National games gave evidence that the Northern students had made the

Football Eleven of Tsing Hua College

Basket Ball Squad and Physical Director

longest strides forward, as shown by the easy manner in which they carried away the first honors, while the Shanghai and Yangtse valley team trailed along in second place.

For several months past there had been evolving in the minds of some of the leaders in the Philippine Islands, the idea of establishing a Far Eastern Olympic Games after the order of the modern world Olympics and ancient Olympic games first instituted in Greece in 776 B.C.

With this idea in view invitations were sent out to all the countries of the Far East, resulting in favorable replies from three of them, China, Japan and the Philippine Islands. This show of interest seemed to the Committee to be sufficient for a beginning at least, and so the Committee on sports and games in conjunction with the annual Philippine carnival issued invitation to all the Far Eastern countries, to send representatives to participate in the First Far Eastern Olympic Games to be held at Manila, February 1st to 10th, 1913.

After several months of preparation and training these three countries assembled together at Manila on scheduled time, more than 150 formidable contestants. The Governor General of the Islands formally opened the games with remarks of welcome addressed to the visiting teams and representatives. Many of the official dignitaries and influential men of Manila were present besides thousands of native Filipinos and Chinese who had come to see and cheer their countrymen to victory. The final score sheet showed that the Philippine Islands team had won first honors with a good margin to spare, with China second and Japan third. It might be well to state here that the Chinese althletes would have given a much better account of themselves had they not suffered from a rough sea voyage en route with its consequent weakening influence, arriving at Manila only the day before the games took place. A meeting of the representatives from China, Japan and Philippine Islands was held at the conclusion of the game when it was decided that the Second Far Eastern Olympic Games should be held at Shanghai, China, in 1915.

A Games Committee was appointed with headquarters at Shanghai, and the Second Far Eastern Championship Games have just come to a suceessful close, May 15th to 22nd. This time China evened up the score of her old rival, and won first honors, with the strong Philippine Islands team a close second. Japan, although making a much better score than in the First Olympics, still had to be content with third place. The time and place for the Third Far Eastern Championships has not been decided upon, although it is expected that they will take place in Japan in 1917.

This brings us to a consideration of the real significance of these games. We know from experience, that to prepare for them and to carry them on successfully, it requires a large expenditure of effort, time and money. The question arises then, are competitive sports and games carried out on such a large scale really worth while? In answering this question let us consider it from an educational and social view-point.

Most of us have studied at school the subjects of geography and history, and are supposed to have stored away in some small niche of our cranium more or less facts about the different countries of the world and something about the people who inhabit them. The sum of all this sort of knowledge is what we call education. Be assured that every member of our party who went to Manila had some vague notion about a native Filipino, for did we not remember pictures of him in the geography book? He was a man of ordinary stature with a decided chocolate complexion all over; he carried a shield and a long spear, and wore around his loins a girdle of cocoanut or palm leaves woven into a belt. Since the occupation of the Islands by the United States, efforts were being made of course to domesticate and educate the native, but then we did not look for any great change in this brief space of years.

On the arrival at Manila, much to the delight of all, we did not find any such primitive state of civilization, although we were told afterwards by a reliable resident, that very primitive races did exist on some of the more remote islands where the natives dressed and looked just like the picture in the geography book. At Manila, however, we were met at the steamship by a committee of refined, educated men, representing various social, political and educational organizations. These gentlemen extended to our party a cordial welcome and the hospitality of the Island. A Committee of Chinese, representing the Chinese Merchants Association of Manila was also there to greet their own countrymen. We soon learned that there was a large Chinese population in Manila, also Chinese residents scattered throughout the Islands. We were further informed that the Chinese controlled a very large share of the business in Manila and that they were respected by both the natives and foreigners as being good, reliable business people.

The visiting Chinese athletes were the guests of the Chinese Merchants Association during their stay in Manila, and everything was done to make them feel welcome and comfortable. Many of the Chinese residents paid daily visits to the hotel to talk with them, they would ask all manner of questions about their home-land which the great majority of the Island residents had never seen. They were also conspicuous by their numbers in attendance at the games, where they came to see and encourage their native team. They invited us to banquets and chartered special tram cars to show us around the city. This social intercourse and exchange of views, this ocular and oral information at first hand, was worth more in terms of educa-

China's Contingent of Athletes Who Took Part in Shanghai Championship Games

tion than years of study from a book on the subject of the Philippine Islands.

This same educational opportunity was given to the 100 or more competitors who came from the Philippine Islands to compete in the Second Far Eastern Championship Games held at Shanghai in May. Certainly they carried away with them a more vivid and truthful impression of China than a lifetime of book knowledge would have given them. Just this sort of experience takes place with every set of athletic games, whether it be National or International.

The education derived from participation in the sports and games themselves is of another type, and of even greater importance, because it is principally intrinsic in effect and deals with the moral and physical side of man's nature. Before the athlete participates in championship games he must first pass through weeks of preparation and training. This schooling gives to his body what intellectual training gives to the mind, namely, strength and symmetry of growth, accurate judgment, physical power, endurance and aggressiveness or confidence, physical discipline and watchfulness or self-control. Add these qualities of a sound educated body to a keen intellectual mind and you have a *real man.*

This is the aim of the modern physical training, to raise man up to a higher grade of efficiency by giving special and expert attention to his neglected side—a weak and untrained body. It is not surprising then that all of the leading educational institutions in the United States of America have added courses in physical education to their curriculums. It is because they believe that here is a large field of practical education and usefulness that has been overlooked and undeveloped; while some systematic out-of-door exercise was not invented for the coolie or the growing youth only, but it should become a universal *life habit,* a real part of our daily program.

Have you ever thought of some of the mental and bodily benefits that can be derived from daily participation for one hour in tennis, horseback riding, golf, baseball, football, archery, or class exercises in a good gymnasium? Let me enumerate a few of them. It will annihilate weariness and give a fresh and energetic tone to the body. It aids digestion and gives one a better appetite. It stimulates peristaltic action of the intestines and assists the body in ridding itself of waste materials. It strengthens the nervous system; gives physical strength, endurance and agility. It enables one to do better mental work in a shorter time. Last and foremost, it is the best remedy known for keeping the body in good health. Plato, the philosopher, said: "To train the mind and neglect the body is to produce a cripple."

The real significance of all our competitive athletics and games is summed up in terms of bodily health, education and efficiency. If they do no more than form the habit of out-of-door exercise among the youth of our country they will have been well worth while, and will have accomplished their purpose. The most vital and important asset to a country is a strong and vigorous physical manhood.

PHILIPPINE FOREIGN TRADE IN 1914

The Philippine commercial outlook at the beginning of 1914 was for a much increased volume of imports and exports. The unprecedented import total of 1912, including as it did large famine-purchases of rice, was really a measure of misfortune, but following a stationary condition in the general import movement in the earlier part of 1913, there was already an increasing volume in the latter part of the year; while the reduced output of the great staples following the disasters of 1912, which had seriously affected the export total of 1913, was confidently expected to give place again to normal production in the course of 1914. These anticipations were fully realized during the earlier part of the year, with an increase of approximately two million dollars in imports and six and a half million in the export total over the corresponding period of 1913. But with the coming of war Philippine trade suffered with the rest of the world. The favorable conditions of the earlier part of the year were reversed, and the net result for 1914, according to customs returns received by the Bureau of Insular Affairs, was a decrease of $4,724,133 in imports and an increase of only $916,678 in exports.

While the reduced import total for the year was generally distributed it fell chiefly on cotton cloths and the iron and steel trade. The exceptionally large importations of cotton textiles in 1913, amounting to over eight million dollars, were not maintained even in the earlier months of 1914, and a more rapid decline during the war period resulted in a shrinkage of $1,872,398 for the year. The United States continued to contribute about three-quarters of the whole, and in this connection it is of interest to note that in the reduced exports of cotton cloths from the United States in 1914 the Philippine market assumed a relative importance never before reached and far exceeds the purchases of any other country.

Imports of iron and steel during the first seven months exceeded by over a million dollars those of the corresponding period of 1913, but this was reversed later, and there was a reduction of $1,630,460 for the year. Though the trade suffered generally from war conditions, sugar machinery, which reached over a million dollars in value in 1913, was the leading item in this decline and accounts for more than half. During the latter part of 1913 these imports were unusually heavy in connection with the installation of new mills, but the prospect of free sugar in the United States and the reduced sugar production of that year were not conducive to new contracts and further development of the industry. The

Foreign Commerce of the Philippine Islands—Imports

Compiled by the Bureau of Insular Affairs. War Department

		Twelve months ending December			
		1913		1914	
		Quantity	Value	Quantity	Value
Automobiles	No.	696	$954,454	589	$703,866
United States	„	605	767,021	499	519,829
Other countries	„	91	187,433	90	184,037
Cement	Bbls.	447,074	811,692	336,863	554,882
United States	„	8	36	43	119
Germany	„	211,797	416,844	83,877	157,451
Hongkong	„	123,265	199,790	83,102	126,739
Other countries	„	112,004	195,022	169,841	270,573
Coal	Long tons	552,552	1,584,067	587,696	1,749,745
United States	„	55,043	166,944	41,407	120,255
Australasia	„	45,612	120,664	83,865	208,365
Japan	„	356,688	1,084,886	305,296	1,040,117
Other countries	„	95,209	211,573	157,128	381,008
Cotton, and manufactures:					
Cloths	Sq. yds.	101,040,051	8,175,363	76,773,383	6,302,965
United States	„	74,321,820	5,970,545	58,348,880	4,667,983
United Kingdom	„	17,746,245	1,476,918	11,480,422	1,037,618
Other countries	„	8,971,989	727,900	6,944,081	597,364
Thread		—	453,584	—	453,644
United States		—	407,290	—	404,074
Other countries		—	46,294	—	49,570
Wearing apparel		—	1,424,325	—	1,422,132
United States		—	363,252	—	379,448
Germany		—	229,815	—	215,079
Japan		—	466,916	—	565,678
Spain		—	264,086	—	184,258
Other countries		—	100,256	—	77,669
Yarn	Lbs.	3,561,977	897,059	4,036,852	910,515
United States	„	6,402	1,220	181	39
United Kingdom	„	1,142,153	292,046	987,304	259,501
Japan	„	1,476,870	391,382	2,293,324	490,410
Other countries	„	936,552	212,411	756,043	160,565
All other		—	893,970	—	874,868
United States		—	342,410	—	382,669
United Kingdom		—	234,539	—	200,410
Other countries		—	317,021	—	291,789
Iron and steel:					
Machinery		—	3,371,222	—	2,538,445
United States		—	1,974,928	—	1,655,034
United Kingdom		—	604,942	—	398,855
Other countries		—	791,352	—	484,556
Corrugated roofing	Lbs.	22,213,453	740,290	23,192,906	770,311
United States	„	17,706,792	614,347	20,212,763	687,676
Other countries	„	4,506,661	125,943	2,980,143	82,635
All other		—	4,502,392	—	3,674,688
United States		—	3,440,508	—	2,750,586
United Kingdom		—	410,575	—	307,005
Other countries		—	651,309	—	617,079
Illuminating oil	Galls.	14,417,572	$1,268,044	12,817,063	$1,281,020
United States	„	13,322,539	1,188,952	10,607,013	1,081,734
Other countries	„	1,095,033	79,092	2,210,050	199,286

result was that imports in 1914 amounted to only $170,030, the smallest sum since 1910, when the modernization of the Philippine sugar mill began.

The coal trade increased, but was less exclusively from Japan. Australian shipments were larger than in 1913, though they have ceased to occupy the prominent place of former years. Imports of cement were less, with a cessation during the latter part of the year of German shipments, which constituted the bulk of the heavy trade of 1913. Imports from Japan and China, however, continued to increase at the expense of the Hongkong product, which for many years dominated the market. The first cement factory to be installed in the islands was in course of construction during the year, but there has been delay in completion in consequence of the war,—its equipment having been contracted for in Germany.

Imports of rice to meet famine conditions in 1912 reached the highest value ever recorded in the trade, and amounted to twenty per cent of all imports, but under increased local production dropped in 1913 to the lowest figure during American occupation, and there was only a slight increase above this minimum in 1914. With the outbreak of war, embargo on shipments from French Indo-China, the chief Philippine source of supply, threatened a serious situation, but the government took prompt measures to check advancing prices by emergency purchases and to secure a continuation of normal trade relations with the French colony. The crisis was passed without serious local disturbance or perceptible interruption of import movement, receipts of Saigon rice being constant during the war period and constituting ninety per cent of the total for the year, with reduced shipments from Siam and only a nominal trade in Burma rice, the smallest in many years. Imports of wheat flour continued to decline and the American product was less by seventy-five thousand barrels. Imports from Australia were better maintained but practically disappeared in the months of November and December.

Some Food Stuffs Decline

Among minor foodstuffs there was a heavy drop from the abnormal half million dollar American salmon trade of 1913, and an important increase in a sardine trade almost as exclusively Spanish. Imports of fresh beef were less but this must be considered in connection with an increase in cattle for slaughter. Australian cattle were imported in larger numbers and shipments from French Indo-China were also resumed in November and December after many months of practical exclusion,—government restrictions having been relaxed in anticipation of a possible embargo upon Australian trade. Purchases of refined sugar continued to decline coincident with increasing local production of superior grades of sugar, and for the first time were chiefly from the United States, though American sugar has enjoyed a tariff preferential since the free trade legislation of 1909.

Exports of Manila hemp realized expectations of recovery in the plantations from the typhoons and unprecedented drought of 1912, which resulted in such heavy loss to production in 1913, and during the first seven months of 1914 an increase of seventeen thousand long tons justified the forecast of normal shipments in the closing months. The war period, however, reversed all this. A monthly average of over eleven thousand tons in the earlier months dropped below seven thousand, and the total for the year was slightly less than the greatly reduced trade of 1913. The full measure of shrinkage in production in conjunction with war is shown in the export decline from 172,311 long tons in 1912 to 114,547 in 1914. While this drop was compensated to a large extent in 1913 by increase in price, the further decline in quantity in 1914 was accompanied by lower prices, with a further reduction of about two million dollars in value.

Leather, and manufactures:					
Boots and shoes	Pairs	469,193	630,147	675,331	912,770
United States	„	327,923	598,406	500,303	878,118
Other countries	„	141,270	31,741	175,028	34,652
All other		—	423,301	—	645,054
United States		—	344,249	—	554,607
Other countries		—	79,052	—	90,447
Meat and dairy products:					
Beef, fresh	Lbs.	14,558,850	946,046	12,675,246	882,144
United States	„	—	—	—	—
Australasia	„	14,558,850	946,046	12,675,246	882,144
Other countries	„	—	—	—	—
Condensed milk	Lbs.	11,151,184	794,195	9,803,043	724,062
United States	„	2,156,705	141,358	1,456,377	114,712
United Kingdom	„	5,230,056	396,063	6,148,925	466,652
Other countries	„	3,764,423	256,774	2,197,741	142,698
All other		—	1,524,274	—	1,378,341
United States		—	629,333	—	505,922
Australasia		—	404,038	—	304,071
Other countries		—	490,903	—	568,348
Paper, and manufactures		—	819,437	—	757,190
United States		—	469,480	—	473,405
France		—	110,787	—	67 975
Germany		—	61,444	—	39,734
Other countries		—	177,726	—	176,076
Rice	Long tons	85,625	1,164,591	95,390	3,276,148
United States	„	—	1	—	—
French E. I.	„	73,983	2,615,786	87,507	2,949,414
Other countries	„	11,642	548,804	7,883	326,734
Salmon, canned	Lbs.	11,471,887	528,668	6,669,845	314,292
United States	„	11,471,760	528,654	6,667,843	314,152
Other countries	„	127	14	2,002	140
Wheat flour	Bbls.	488,063	1,898,954	399,449	1,611,158
United States	„	340,402	1,308,341	265,298	1,050,273
Australasia	„	142,592	590,217	134,076	560,469
Other countries	„	69	396	75	416
Wood, and manufactures		—	770,627	—	771,789
United States		—	503,837	—	624,582
Other countries		—	266,790	—	147,207
All other articles		—	16,736,084	—	16,078,624
Total imports		—	53,312,786	—	48,588,653

Twelve months ending December

Exports		1913 Quantity	1913 Value	1914 Quantity	1914 Value
Copra	Long tons	80,920	$9,545,724	85,965	$7,980,270
United States	„	9,879	1,199,083	17,894	1,606,133
France	„	43,638	5,064,431	38,755	3,485,748
Germany	„	10,583	1,403,319	6,363	767,595
Other countries	„	16,820	1,878,891	22,953	2,120,794
Coconut oil	Lbs.	11,595,7[illegible]9	1,146,339	26,330,263	2,619,183
United States	„	11,071,466	1,095,438	26,228,071	2,607,163
Other countries	„	524,313	50,901	102,192	12,020
Hats	No.	547,218	408,939	681,275	313,881
United States	„	266,281	252,229	602,527	253,852
Other countries	„	280,937	156,710	78,748	60,029
Hemp (Manila)	Long tons	117,928	21,121,084	114,547	19,194,815
United States	„	46,400	9,787,216	49,348	9,619,376
United Kingdom	„	57,083	8,108,005	48,232	6,040,714
Japan	„	4,670	1,707,292	5,859	2,075,512
Other countries	„	9,775	1,518,571	11,108	1,459,213
Hemp, knotted	Lbs.	739,035	565,560	701,105	570,787
United States	„	10,697	9,444	963	950
France	„	92,203	71,437	60,777	55,455
Italy	„	527,071	405,085	553,351	445,992
Switzerland	„	63,184	47,240	10,608	8,375
Other countries	„	45,880	32,354	75,406	60,015
Maguey	Long tons	6,960	590,951	5,440	417,057
United States	„	421	44,676	522	49,313
United Kingdom	„	4,920	409,229	2,923	219,015
Other countries	„	1,619	137,046	1,995	148,729
Sugar	Long tons	154,848	7,032,889	232,761	11,059,593
United States	„	30,232	1,564,036	166,851	8,241,853
China	„	29,883	1,338,276	18,434	805,598
Hongkong	„	48,851	2,112,854	28,511	1,108,602
Japan	„	45,868	2,016,904	13,604	619,705
Other countries	„	14	819	5,361	283,835
Cigars	Thous.	191,762	3,012,234	154,754	2,315,159
United States	„	71,513	1,642,888	56,205	1,200,126
Australasia	„	16,583	243,763	13,690	201,312
British E. I.	„	22,892	252,117	15,362	181,343
China	„	22,081	209,380	17,199	174,570
Hongkong	„	14,398	163,374	9,549	121,496
Other countries	„	44,295	500,712	42,749	436,312
Leaf tobacco	Lbs.	28,088,987	1,854,776	28,848,165	1,757,824
United States	„	9,888	2,259	45,598	4,612
Austria-Hungary	„	1,796,085	163,080	392,406	41,150
Spain	„	18,778,875	1,229,263	18,028,004	1,146,348
Other countries	„	7,504,139	460,174	10,382,157	565,714
All other articles		—	2,494,460	—	2,461,065
Total exports		—	47,772,956	—	48,689,634

Sugar Shows Increase

The sugar industry after two years of unfavorable crop conditions showed results of increasing acreage and improved methods by exports in 1914 of 232,761 long tons. This is considerably above the highest figure reached during American occupation, and is nearing the two hundred and fifty-seven thousand ton maximum of the industry in the frequently quoted period of prosperity during the Spanish regime, before the competition of beet sugar and the improving methods of production elsewhere left Philippine sugar discredited and the industry decadent. There was but slight improvement over the low average price of sugar in 1913, high war prices having but little effect as the bulk of the crop was marketed before that time. The larger quantity, however, netted a four million dollar increase with which to offset the general decline in the value of other exports, and to put the industry in a more favorable position for further modern mill equipment. There are now in operation some fifteen recently installed mills capable of producing high grade sugar, and the long delayed start has been made to raise the low standard of Philippine sugar to that of other countries and add to production the present waste through obsolete methods. Upon equal terms with other sugar the American refiner does not look with favor upon the Philippine product, but under the advantage of free trade the bulk of it was diverted to the United States prior to 1913. In that year a large Cuban crop at hand for American needs combined with an unusual demand from Japan and favorable Oriental conditions, shifted the market to nearby countries. Early in 1914, however, Japanese purchases ceased, shipments to the United States resumed their former importance, and were over sixty per cent of the total exports for the year.

Copra versus Coconut Oil

Unfavorable conditions in the copra industry grew worse rather than better during 1914. A new element entered into the slow recovery of the coconut plantations from the disasters of 1912, and production was confronted by the discouraging feature of a serious downward movement in prices from the extremely high figure reached in 1913. Export prices had already declined in July to a marked extent, and the war brought a further drop, with figures for the closing months ranging below 3.5 cents per pound against more than 5.5 cents in the corresponding period of 1913. Exports reached a very low level in the earlier part of 1914 and though there was a larger movement in the closing months, only a nominal increase was recorded for the year. The full extent of the depression in the industry through small production and declining prices as compared with the high tide of former prosperity is shown by exports of 140,536 long tons in 1912 valued at over fourteen million dollars, against 85,965 valued at a scant eight million in 1914. The reduced quantity of copra exported in the past two years must, however, be considered in connection with a new trade in coconut oil developed since 1912, and roughly representing the consumption of some twenty thousand tons of copra in the manufacture of these exports in 1914. This oil trade is the product of a plant recently installed at Manila, and the new industry outstripped all minor export industries, with a total of over two and a half million dollars in 1914. With this result from one plant and another in prospect of larger capacity, the outlook for further increase in exports of coconut oil is favorable, and the local manufacture of a leading raw material heretofore exported is an important development to be watched with interest.

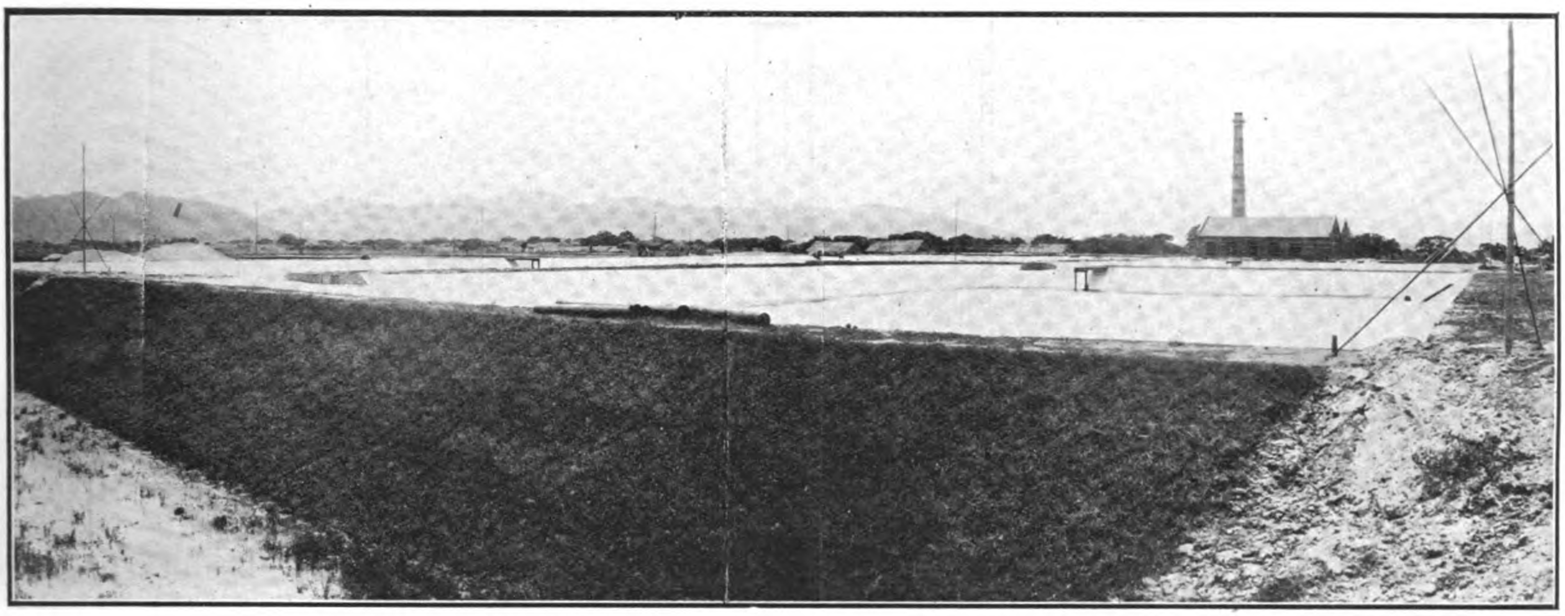
The leading feature in the reduced cigar trade of 1914 was the continued lack of interest shown by the American buyer. The American

Commerce of the Philippine Islands by Countries

	Imports		Exports	
	Twelve months ending December			
	1913	1914	1913	1914
United States	$26,676,261	$24,020,395	$16,434,018	$24,427,710
Hawaii	594,847	242,250	127,275	119,415
United Kingdom	5,376,039	4,429,612	9,068,607	7,280,033
Australasia	2,678,090	2,425,251	616,911	602,650
Austria-Hungary	161,267	149,045	190,344	82,829
Belgium	287,035	215,560	544,146	353.525
China	2,312,265	2,669,628	1,646,841	1,105,718
East Indies, British	665,238	744,346	1,327,128	1,157,095
French	2,707,637	3,131,240	12,284	8,505
France	1,448,164	1,098,609	5,482,852	3,897,283
Germany	2,888,441	2,252,550	1,741,598	1,079,714
Hongkong	529,458	297,148	3,178,918	2,025,917
Italy	229,595	191,678	496,360	738,520
Japan	3,393,230	3,633,642	3,924,534	2,993,845
Netherlands	183,384	132,504	287,021	333,116
Spain	1,238,922	1,193,475	2,452,507	2,256,337
Switzerland	701,782	520,895	49,115	11,097
Other countries	1,241,131	1,240,825	192,407	316,325
Total	53,312,786	48,588,653	47,772,956	48,689,634
TOTALS.				
January	$4,743,786	$5,517,600	$4,368,605	$3,458,749
February	4,059,625	3,942,920	3,820,429	4,063,889
March	3,960,078	5,392,266	4,875,699	4,561,685
April	3,405,930	3,944,284	3,606,886	3,582,188
May	4,319,970	4,040,007	3,051,258	4,957,466
June	4,784,449	5,135,545	3,902,204	6,466,196
July	4,526,641	3,772,427	2,596,125	5,542,077
August	3,547,287	3,976,620	5,090,988	3,153,175
September	5,509,148	3,752,635	5,529,434	4,035,167
October	5,128,377	3,257,901	4,246,001	3,512,140
November	4,750,134	2,507,471	4,178,851	2,158,367
December	4,577,361	3,348,977	2,506,476	3,198,535
Total	53,312,786	48,588,653	47,772,956	48,689,634
UNITED STATES.				
January	$2,283,772	$3,071,750	$1,503,854	$1,148,756
February	1,982,135	1,747,515	1,902,044	1,570,065
March	2,165,663	2,725,024	1,183,651	2,284,306
April	1,374,398	1,885,466	920,969	1,883,091
May	2,287,705	1,996,280	1,235,891	2,680,992
June	2,256,390	2,819,588	854,909	3,647,195
July	2,475,858	1,626,885	835,938	3,270,783
August	1,352,797	1,882,575	2,086,718	1,706,332
September	2,936,306	2,035,238	2,576,691	2,360,011
October	2,631,139	1,492,614	1,624,569	1,949,867
November	2,533,016	1,179,725	1,010,438	946,776
December	2,397,082	1,537,735	698,346	979,536
Total	26,676,261	24,020,395	16,434,018	24,427,710

demand, which dates from free trade, has been very irregular and the large shipments immediately following the passage of the legislation was succeeded by a period of depression from which there was not complete recovery until 1912, when the quantity exported reached ninety million and nearly equaled that to all other countries. Another reaction became evident toward the middle of 1913, which continued down almost to the end of 1914, with the monthly export average only slightly above four million. There was some improvement in the closing months, but the total for the year was smaller and amounted to 56,205,000 against 71,513,000 in 1913. Average prices in the American trade, which have ranged relatively high—partly in consequence of restriction placed upon the export of lower grades to the United States—declined following the removal of this limitation, but under the free conditions of 1914 still remained considerably above the general level. The unusually large trade with countries other than the United States in 1913 was not maintained, and the less favorable condition of the cigar industry in 1914 is shown by a seven hundred thousand dollar shrinkage in the export trade. The quantity of leaf tobacco marketed was somewhat larger than in 1913, but there was a decline in value in consequence of an average export price the lowest in many years.

In the distribution of Philippine trade by countries in 1914 the United States was credited with half the total value of both imports and exports, the considerable increase in the proportion of exports being chiefly due to the resumption of sugar shipments to the American market. In addition there was a trade of some importance with Hawaii largely made up of imports of coffee and exports of cigars, and a small but growing general export trade with Guam following improved shipping facilities. Exports to all leading countries other than the United States were uniformly smaller, and this was also true of imports with the exception of nearby Oriental sources.



General View of whole Intake Installation—Settling Tanks in Foreground.

THE SWATOW WATERWORKS

With the growth of trade, Swatow—situated as it is at the junction of the Kit-yang River and the southernmost arm of the Han River, with good water communication with the interior and connexion with the important business centre of Chowchow-fu by railway—gradually developed into one of the most important seaports of China. With its growth the need rapidly arose for a more modern and convenient water supply than that furnished by the old-style bucket system, and early in the nineties many of the more progressive people in the city began to discuss the advisability of having a modern supply installed. This movement took definite shape ultimately.

In 1892, 1899 and 1905 Messrs. Leigh and Orange, Civil Engineers of Hongkong, were consulted and reported on various schemes for a water supply, and in 1909 the scheme as now carried out was evolved and sanctioned. Thanks to the efforts of Mr. Ko Shing-Chi, a prominent merchant, and his friends who had faith in his scheme, Swatow now has water throughout, the analysis of which compares very favourably with any other water supply.

It was decided to take the water from the Han River at Ambow. A suitable piece of ground was purchased on the river bank and staff quarters erected at once and the work proceeded with.

The water from the river passes into a steel intake tower placed well out into the stream, and from it through a 15 inch diameter pipe to the intake well from which the low-lift pumps discharge it into four settling tanks. The water then gravitates into the filter beds. It then passes into the service reservoir, connected to which is a service tank. The clean water is pumped from the service tank by the high lift pumps through the 6¾ miles of 12 inch pipe to a steel water tower at Swatow. From the water tower distributing mains are laid throughout the town to hydrants from which, in the original scheme, it was decided to supply the town by buckets as before. Since the completion of the works, however, individual homes have been connected to the mains and now practically the whole town is so supplied.

The water required for the fire hydrants is far in excess of the quantity needed for domestic purposes in each district served by them, namely, 20 gallons per head of population. In the event of a large fire, the supply of water can be cut off and unfiltered water pumped into the mains.

The level of the highest known flood was taken before designing the work and allowance was made to keep the cope of the reservoir 2 feet 6 inches above this; nevertheless on September 8, 1911, when the bulk of the walls of the settling tanks and filters were finished, and before the filling was completed, a flood occurred which rose 1 feet 6 inches above the highest known level, burst the service tank below the intake works, and completely submerged them. The work stood this severe test well, and no damage resulted beyond the loss of some false work and shuttering and the washing out of part of the filling.

The settling tanks, filters, and reservoir were partly excavated below the original ground and carried up to 12 feet above it. The banks were built up with sand taken from the river and the clay puddle from the actual site on which the tanks were built.

No stone was obtainable on the site, and all concrete aggregate was broken granite obtained from Kak Chiao and brought up the river in boats. The sand was dredged from the river bed and bricks had to be brought from Canton and Amoy. Green Island cement was used throughout.

Intake Tower.—The intake tower is a one-half inch steel cylinder three feet in diameter, with a base plate and angles. The cylinder is perforated for a length of five feet at the lowest range of the river water, and is supported by 12 inch by 6 inch rolled steel joists driven as piles three feet clear of the base plate and pulled over at the top and bolted to the cylinder.

The river was excavated and the tower bedded on sand, the piles being driven afterwards.

Steel piles were used and connected up by a double ring of 10 inch by 4 inch channels to act as a fender to keep off river craft. Access from the shore is provided by a lattice girder foot bridge and a ladder is also provided inside the cylinder for cleaning purposes.

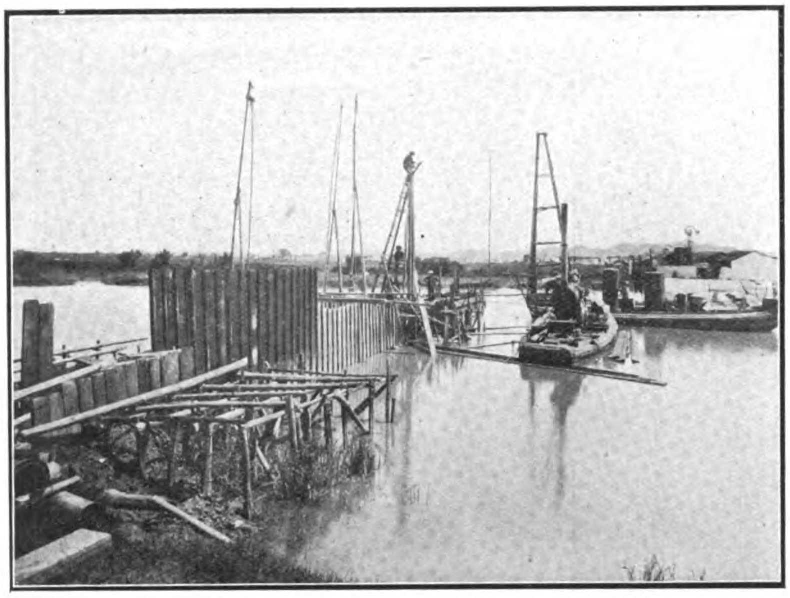
A 15 inch valve is provided immediately on the shore side of the intake tower on the 15—inch supply pipe for shutting off all water from the intake well, where any footvalve trouble can be dealt with.

The intake well is 18 inch brickwork in cement and was sunk on a teak kerb, until the required depth of 12 feet below the surface was reached.

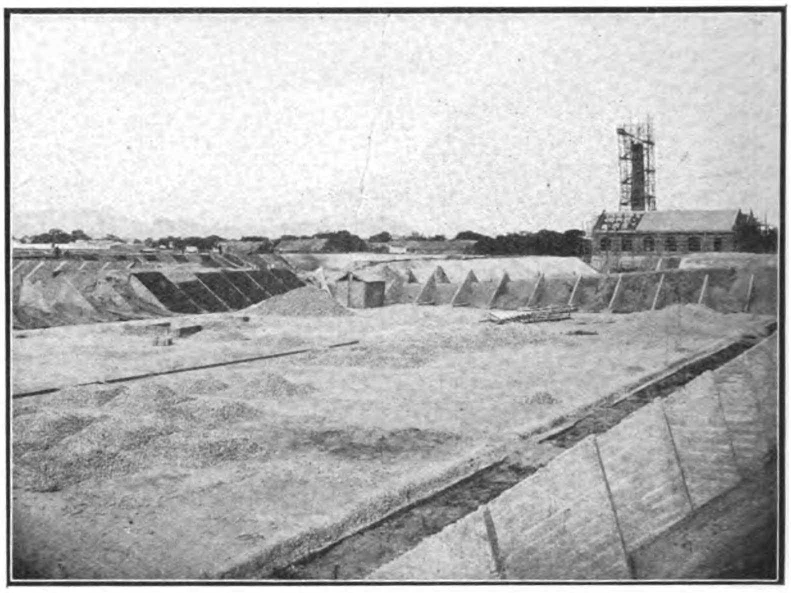
The bottom was then sealed with 2 feet 6 inches of cement concrete and the walls completed up to the finished level 11 feet above the surface, and the filling put in outside.

The lowlift suctions each 14 inches in diameter, with their footvalves, are in this well.

Engine House.—The engines and boilers are housed in a building of Canton red brick in cement mortar, faced with Amoy red brick. The interior is lined with white glazed tiles. Steam is provided by two Babcock-Wilcox boilers with a working



The Han River Siphon—Built in two sections to permit River Traffic



The settling tanks in course of construction showing the concrete butresses

pressure of 180 lbs. per square inch, having a heating surface of 1,098 square feet and a grate area of 27 square feet, with two superheaters, a Green economizer of thirty—two tubes, and an exhaust feed-water heater of 55 square feet heating surface. Provision is made for the addition of another boiler.

Pump.—The pumps are duplicate, of the horizontal Worthington type, triple-expansion, surface-condensing high-and lowlift pumping engines. All water pumped passes through the surface-condensers on the delivery side of the pump, thus avoiding the use of a circulating pump. The delivery of the low-lift pumps is 1,375 gallons per minute, 10 per cent more than that of the high lift, which throw 1,250 gallons per minute, to allow for waste and evaporation in passing through the filters. Each set is capable of raising 1,200,000 gallons in 16 hours or 1,800,000 gallons in 24 hours, and delivering through the 12 inch pipe-line, 6¾ miles in length, to the water-tower 70 feet above the pump delivery and 86 feet above ground-level at the water-tower.

The engines are carried on reinforced-concrete beds on reinforced-concrete foundations. These foundations were loaded with 25 per cent. more than the weight of the engines and beds and sunk until they took a bearing. The chimney is carried on a raft of cement concrete 25 feet square reinforced with old 75-lb. flat-bottomed rails.

Settling-Tanks. The settling tanks are four in number, 200 feet by 113 feet by 9 feet deep, with 7 feet 6 inches depth of water, containing 1,200,000 gallons each. They are worked in series of three; the first being filled by the low-lift pumps, the water flows over weirs to the second and third, the fourth being left empty for cleaning. From the third tank the water gravitates to the filters.

These tanks are constructed with cement-concrete bottoms, 15 inches thick, laid to a fall of 1 in 54 towards a centre channel, which drains to a sump with an 8-inch scour pipe conveying the deposited matter to the river below the works. Expansion-joints filled with marine glue are provided 10 feet apart. The sides are of 6-inch cement-concrete reinforced with No. 8 expanded steel laid to a slope of 1½ in 1 and supported on concrete buttresses 10 feet between centres and 6 inches thick, an expansion-joint being put in at each buttress. The whole tank is surrounded by 18 inches of clay puddle.

The water-level is fixed by an 8 inch overflow-pipe connected with the scour-pipe, and the water is drawn off to the filters at a point 3 feet 6 inches above bottom. The overflow-pipe is fixed at the lowest point of the scour-channel and has a cone joint: on lifting this the whole tank can be emptied into the scour-pipe.

Before commencing construction, trial holes were dug on the site of each settling-tank, and 3 feet to 3 feet 6 inches of hard clay were excavated before reaching the subsoil of sand and clay; it was decided to puddle 18 inches of the surface of this and put the concrete bottom in without removing any of it. The fresh puddle was put in under the slopes only. The concrete was composed of 1 part cement, 3 parts sand, and 5 parts hand-broken granite to pass 2 inch ring in all directions. The tanks were commenced in April and completed in December, 1911. After finishing the bottom and buttresses the slopes were brought up by filling and puddle, and the concrete placed on the puddle and finished with the shovel.

No rendering or patching was done, and the only trouble experienced has been the settling and cracking of the weir floors, due to the contraction of the filling. These have been since brought up with concrete to the correct level.

Filter-Beds.—The filter-beds are four in number, each 120 feet by 70 feet by 9 feet deep, with a water capacity of 260,000 gallons each. The concrete floors, of the same composition as the settling-tanks, are 12 inches thick, laid on 18 inches of puddle on the original surface, continued under the walls, and formed to fall to a centre channel with expansion joints 10 feet apart between centres. The walls are of Canton red brick in cement mortar faced with Amoy red brick and are vertical where in the water space, and battered 1 in 12 from there to the bottom. The walls are backed with 18 inches of clay puddle, brought up with the filling and coped with 14-inch by 6-inch granite.

The filtering material consists of one course of Amoy bricks on edge laid in cement mortar, one course flat, 12 inches of broken granite cubes measuring not less than 1½ inch or more than 2 inches any way, 6 inches coarse washed gravel to pass ¾ inch riddle and be retained by ½-inch riddle, 6 inches washed pea-gravel, and 2 feet 6 inches washed fine sand. Eighteen 4-inch cast iron air-pipes ventilate each bed. Brick chambers for outlet regulators and steel gangways for inlet valves are also provided.

Outlet regulators pass the water from the filter-beds to the service-reservoir. These consist of a telescopic tube carried by galvanized-iron floats which rise and fall with the water in the filter, and carry an adjustable wire-box, which can be raised or lowered by a small hand-wheel, to increase or diminish the flow.

Two sandwashers are provided to serve the four beds, supplied from the pumping-main, and discharging the dirty water into a creek outside the works.

Work on these commenced in May, 1911, by puddling the site and putting in the floors. It was carried on throughout the wet season, when the walls were built on top of the concrete, and at the end of June had reached a height of 9 feet, the filling being brought up at the same time. Settlement of the walls occurred to the extent of from ⅛ inch to 1⅛ inch, causing cracks to appear in the walls at the top which gradually extended to the bottom, and also in the floor, about 12 feet from the edge of the long sides of the filters; the expansion-joints prevented cracks on the short side. These settlements were directly due to the unequal load of the filling and walls upon the soft surface of the

View from Engine House showing Settling Tanks and Filter Beds (or Right)

puddle. They were dealt with by loading the floor inside the area defined by the cracks with the filtering material and bricks and waiting until all movement had ceased, as shown by levels taken each month. In May, 1912, the cracked portions of the walls were rebuilt, the cracks in the floors cut out and run with neat cement grout, and the walls finished and coped. No further settlement occurring, filtering material was put in and the pipes connected.

Service-Reservoir.—The service-reservoir receives the filtered water, and is 102 feet by 79 feet by 17 feet deep, with a capacity of 800,000 gallons. It was originally intended to cover it with brick vaulting and earth, but the foundation proved so bad that it was decided to omit the cover and slope the side walls in a similar way to the settling tanks.

Service-Well.—The service well is of brickwork in cement 1 foot 10½ inches thick, and was constructed in the same way as the intake well.

Pipe-line.—The filtered water on leaving the pumps at Ambow passes to the water-tower at Swatow along a 12-inch cast-iron main, laid about 2 feet below the paddy level, except where it crosses the creeks, where it is carried up the railway-bank and hung to the girders of the railway bridges. Air-valves are provided at all summits, and the pipe does not rise at any point above an imaginary line drawn from the pump discharge to the foot of the water-tower to represent the hydraulic gradient. The pipe-line is divided into fifteen sections by 12 inch stop-valves. Wash-out valves are fixed at intervals of 900 yards. Scraper doors are fixed at intervals of 900 yards.

The pipe-line in the siphons under the River Han have flanged joints, and a 3-inch pipe is put in above them to take the water back to the distributing-main, to supply the district on the railway side of the river, and avoid tapping the pumping main. The lead joints on the pipe line are protected with ¼ inch neat cement.

Water-tower.—The water-tower consists of a cylindrical steel tank, 35 feet in diameter and 22 feet high, with a spherical bottom 9 feet deep, of 150,000 gallons capacity. The top water-level is 83 feet 9 inches above ground, and the tank is supported on eight 69-lb. steel-joist stanchions, 11 inches square braced with steel rods. It is erected on a concrete raft reinforced with rails. The tank is completely covered with a sunshade of 20 gauge corrugated iron, leaving an air space of 4 feet.

A wrought iron staircase inside the supporting framing gives access to a gangway which runs round the tank, and to the inlet, outlet and scour pipes, which are grouped in the centre.

A lightning conductor and electric water-level indicator are provided, the latter showing on a recorder at the engine house at Ambow.

Distributing-Mains.—European residences and offices and most of the Chinese are now supplied by meter, the charge being 5 cash per two buckets of 4 gallons each which is equal to 1s. per 1,000 gallons. The old rate for the filthy fluid referred to in the analysis was 1 dollar per sixty buckets, about 6s. 6d. per 1,000 gallons.

The works were carried out from the designs and under the supervision of Messrs. Leigh & Orange, Civil Engineers and Architects, Hongkong. The Contractors for the whole work were Messrs. Macdonald & Co. of Hongkong.

Water Tower with Sun Shade cover to Sides and Roof

COST OF THE WORKS

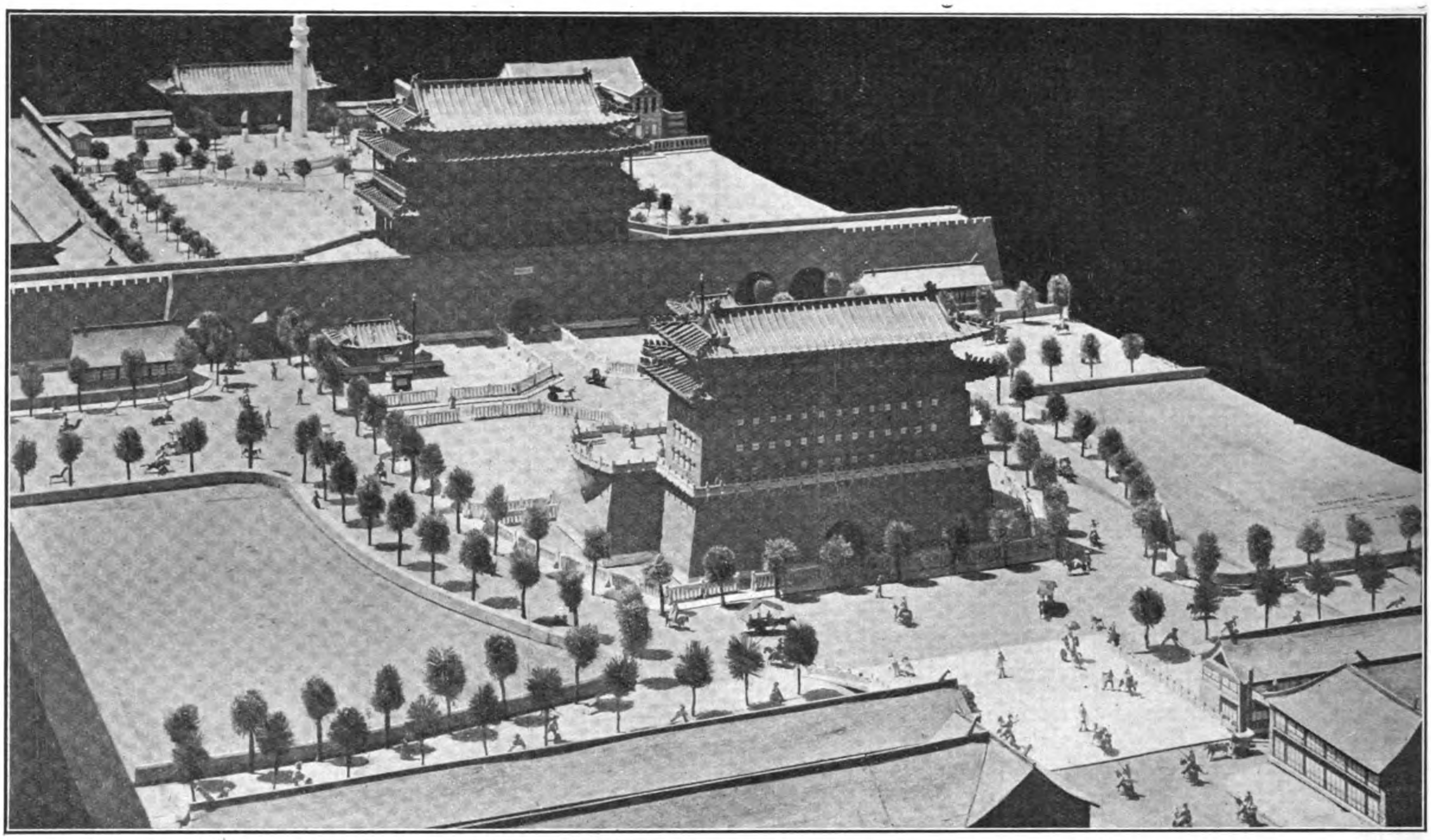
Office and quarters at Ambow	$ 15,300.00
Embankments	14,600
Intake	2,450
Engine and boiler Houses	44,600
Pumping machinery, electric lighting set, &c.	82,400
Excavation for pumping main	1,240
Settling tanks	105,200
Filter beds	63,950
Service reservoir	28,600
Service well	3,550
Intake well	990
Pipes at Intake	24,150
Pumping main	199,200
Town distributing pipes	117,270
Water tower	35,080
Extra work and materials in spare parts, tools &c.	8,000
	746,680
Way leave along railway for pipe line	56,250
Land, believed to be about	23,500
Total Exclusive of Engineers' fees	$826,330

COMPARATIVE ANALYSES OF THE WATER

Quantities expressed in Grains per Imperial gallon.

	1 Swatow	2 Canton filtered	3 Tytam filtered	4 Pure and wholesome	5 Ambow S. W. W.
Appearance in 24 inch tube.	Turbid	colourless	colourless	colourless	Opalescent
Total solids dried at 212°F.	119.0	5.8	2.8	5.0	4.0
Chlorine in chlorides	69.3	0.2	0.6	1.0	0.3
Hardness in chalk grains or degrees	19.0	5.0	—	6.0	1.5
Ammonia	0.007	—	0.0021	0.0014	0.0028
Albuminoid ammonia	0.0042	0.0028	0.0056	0.0035	0.0014
Oxygen absorbed at 80°F. in 4 hours.	—	0.019	0.015	0.035	0.052
Nitrogen in nitrates and nitrites	0.016	0.008	0.012	0.01	0.008
Sugar test for detection of sewage	—	none	none	none	none
Poisonous metal	—	none	none	none	none

Sample No. 5 was taken in sterilised 1 gallon bottles plunged 5 feet below the surface of the water, the cork withdrawn and replaced under water and immediately sealed and sent to Hongkong where it was analysed by the Government analyst.



THE NEW CHIEN-MEN FROM A PLASTER MODEL SHOWING APPEARANCE OF GATE AFTER REMOVAL OF THE CURTAIN WALL

IMPROVEMENTS AT PEKING

The Alterations at the Chien-men

On Wednesday, June 16, His Excellency Chu Chi-chien, Minister of the Interior, began the work of demolishing and reconstructing the old gateway of the Peking Chien Men, by removing the first stone, thus giving effect to the order of His Excellency President Yuan Shih-kai, that "a new way of communication shall be opened."

The higher authorities of Peking in discussing plans for the project submitted by the architect Mr. Rothkegel, insisted that all the buildings on the Chein Men Gate (the Imperial Gate of Peking) which were of any architectural beauty whatever should be carefully preserved, and that the pearls of Chinese architecture, the Northern and Southern Imperial Gates, should remain in all their old splendour to gladden the eyes of many future generations.

The reason which necessitated the pulling down of the walls enclosing the inner court of the Chien Men, was that these hindered the free movement of the heavy traffic. As the gateway under the northern tower was only seven metres wide, and consequently not large enough for the purpose, the walls surrounding the court had to be removed, and there will be constructed in their place two large roads 20 metres in width, which will converge at the bridge over the canal on the south side of the gate.

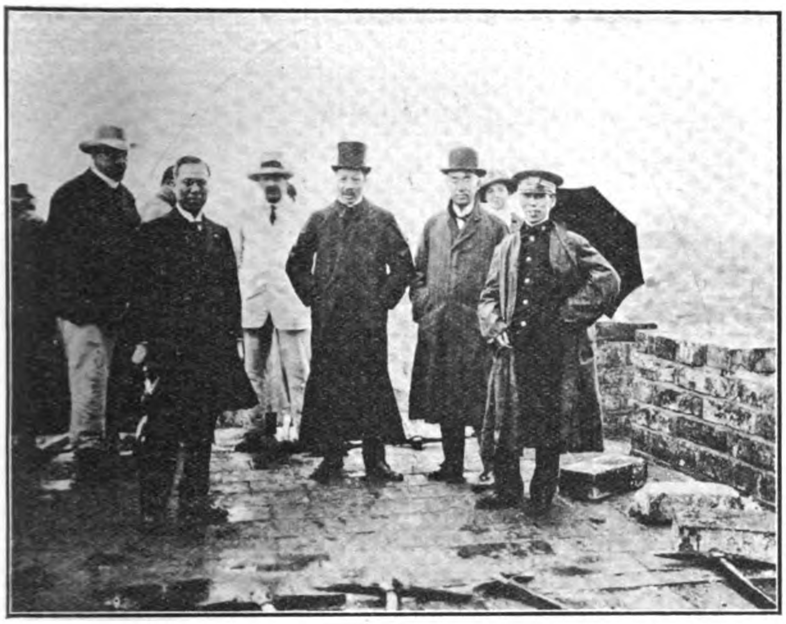
At the point where the two new roads will meet the city wall, four tunnels are being constructed, each measuring 9.50 metres in width, two for each street. Northwards, the streets will be so laid as to meet the tunnels and then continue onwards. These roads will be properly built with modern improvements, sidewalks, conduits, etc. The rain water will be drained off in a southerly direction.

The two northern ramps to the city wall will remain, and the old popular walk on the wall so cherished by the inhabitants of Peking, will be preserved. There will be no architectural changes on the north tower. Wide, showy stairways will lead to the southern tower, ending in a roomy terrace on the same height as the present wall, 13 metres from the roadway. On this southern tower a gallery two metres wide will be constructed on the southern, eastern, and western sides, thus offering a magnificent view of Peking and its surroundings, and the interesting flow of traffic. The interior of this southern tower will be renovated, and may be used either for exhibition purposes or as a museum.

The realisation of this reconstruction naturally necessitated the acquirement by the Chinese Government of several lots of valuable property together with the buildings thereon.

The large square measuring about 100 metres wide by 300 metres long, situated between the two roads leading from south to north, will not be built on, but will be surrounded by a handsome and tasteful low parapet wall, and the interior will be planted with lawns and shrubs. The two old walls situated in the square will remain, but will be suitably embellished according to the idea of Mr. Chu Kin-kow (Co-director of the Peking-Mukden Railway).

Praise for the final achievement and carrying out of this very useful and necessary project is due to His Excellency Chu Chi-chien, Minister of the Interior; Liang Tung-yen, Minister of Communications; Mr. Mai Chai-chee (Dr. Mark), Vice-Minister of Communications, and Mr. Chu Kin-how, Co-Director, Peking-Mukden Railway. These gentlemen have



OFFICIALS INTERESTED IN THE RECONSTRUCTION OF THE GATE

On the left Dr. George Mark, Vice-Minister of Communications (holding the silver pick): in the centre, His Excellency Chu Chi-chien, Minister of the Interior; on the right Mr. Chu Kin-how, Co-Director, Peking-Mukden Railway.

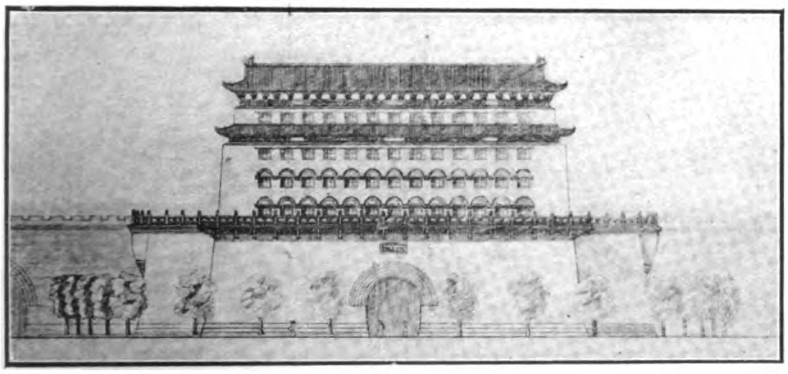
TEARING DOWN THE CURTAIN WALL

His Excellency Chu Chi-chien, Minister of the Interior, beginning the work of demolition at the Chien-men by removing the first bricks with a silver pick.

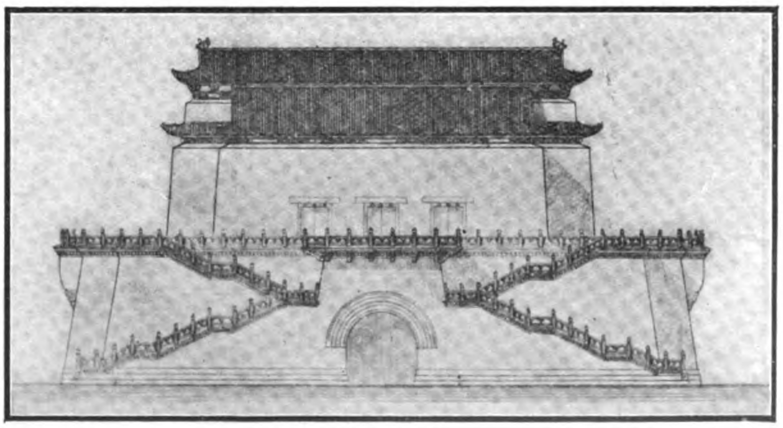
pressed forward the project towards final fulfillment with untiring zeal and forethought. After plans and designs had been submitted and altered so as to arrive at the best and at the same time the most workable scheme, Mr. Rothkegel, the architect, has been able to submit plans which have at last found favor and been accepted. He,

THE CHIEN-MEN, PEKING

This photograph overlooking the Chien-men clearly shows the system of construction of the gateways in the Tartar Wall of Peking. The clock-tower in the foreground of the picture is part of the terminal station of the Peking-Mukden Railway, while the arrow points to the terminus of the Peking-Hankow Railway. Work is now progressing in the removal of the intervening walls forming the curtain of the Chien-men, which will leave only the two gate towers standing. This will enable the construction of a connecting line of railway, as shown in a map on another page. The tower on the right is the main tower of the Chien-men.



SOUTHERN ELEVATION OF NEW CHIEN-MEN, FROM DRAWINGS BY THE ARCHITECT



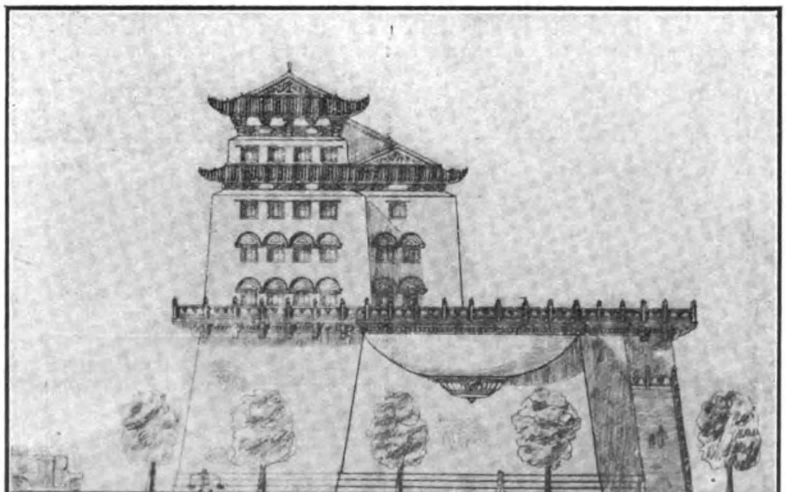
NORTHERN ELEVATION OF NEW CHIEN-MEN

His Excellency Chu Chi-chien, Minister of the Interior

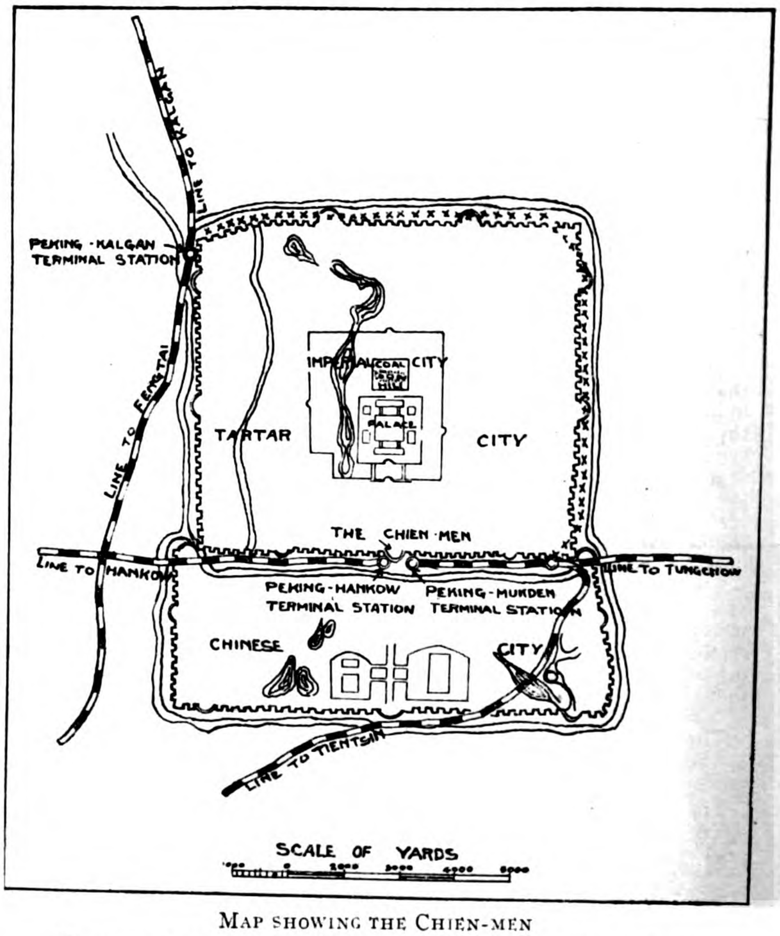
Mr. Chu Kin-how, Co-Director of the Peking-Mukden Railway, who is largely responsible for the alterations of the Chien-men.

too, has been entrusted with the carrying out of the work, which we understand is to be completed in the short space of about four months.

The specifications for the work call for the demolition of the eastern and western semi-circular walls between the Chien-men Gate and the southern tower, all good materials from these walls to be used for reconstructional work. At the junction points of the eastern and western adjoining walls to the southern tower, a new wall is to be built on each side 2 metres thick. On the top



Eastern Side of Tower after Removal of Curtain

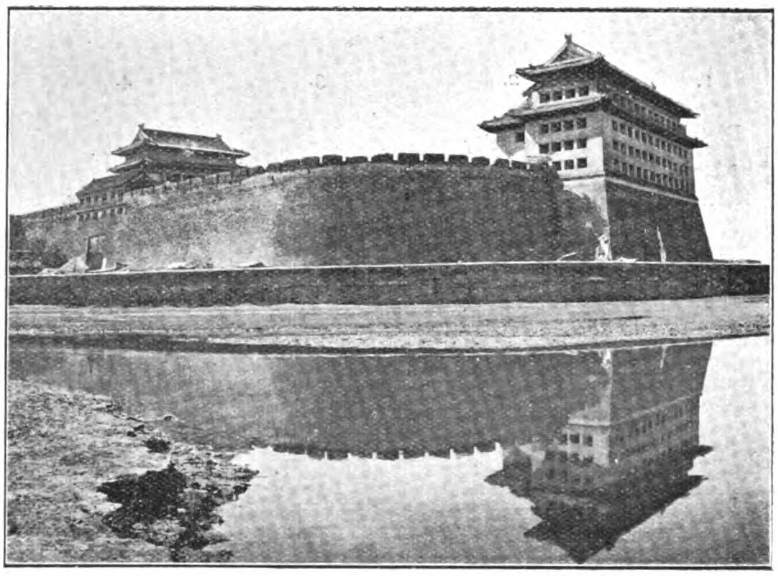


Map showing the Chien-men
The line of crosses shows the route of the connecting railway.

of these two walls two large oval over-hanging balconies of reinforced concrete are to be built from good bricks to be taken from the old walls. On the northern side of this gate tower two flights of stairs are to be built. They will consist of eighty-two steps, each step three metres long. The steps of the staircase are to be made of new stone of good quality, 15 cm. high by 34 cm. deep, smoothly dressed and laid in a bed of cement. There will be four landings to each stairway. The foundations and the supporting masonry are to be constructed in the same style and quality as existing work. Round the south, east and west sides of the gate top, a new balcony six feet high will be built of reinforced concrete. Staircase, gallery and platform are to have balustrades of reinforced concrete with richly worked Chinese ornamentation. The interior of the south gate tower is to be provided with eight new doors opening on the gallery, and also eight new windows. All the existing eighty-two windows are to be provided with glass window frames. The old shutters are to be removed. The northern side of the interior at present open to the roof is to have three stories corresponding to those on the southern side of the interior. The existing stairs inside being too steep and too small are to be removed and replaced by a new broad and convenient staircase. On the south side, 50 windows are to be decorated with semi-circular mouldings. At the junction points of the semi-circular walls and the main wall two openings are to be made on either side of the Chien-men Gate, each to be nine metres wide and eight metres high. Each of the four openings is to be provided with a high double winged gate four metres high, of pressed sheet steel to move on rollers on iron rails laid in the roadway. On the side of the semi-circular walls which are now being demolished, two roads are being constructed. All the existing stone paved roads are to remain, but they will be renovated. The new roads are to be laid with stone rubble covered with sharp sand to be pressed to a depth of 30 cm. by steam rollers. The roads are to have sidewalks, and iron chains on reinforced concrete pillars are to be erected.

The two small yellow tiled houses which used to grace the circular wall, have been pulled down and will be re-erected on the north side of the Chien-men tower.

Another View of the Chien-men
This view shows the passage way through the main pavilion, as well as the curtain which is to be removed



The Anting-men
As in the case of the Chien-men the stone curtain shown in this picture will be removed, leaving the towers standing.

The Care of Motor Tyres.

Despite the fact that tyres wear out sooner than any other accessory of a motor car, many motorists give them no more attention than they give the springs. They seem to regard tyres as a necessary evil, at best, little realizing that the mileage now obtained from tyres, far greater as it is than that of a few years ago, could be still further increased if tyres received the same watchful care that is given to other destructible supplies.

The proper care of tyres is not a burden upon any motorist. It is a matter merely of watchfulness, of anticipating rather than repairing trouble. A knowledge of the necessities of the modern tyre is first needed; then the rest is easy.

A motorist should know these eight things:

The correct use of tyre sizes and types.

The details of application and inflation of tyres.

The causes of excessive wear.

The causes of tyre injuries, and the effect of neglect.

The use and abuse of tread attachments and tyre fillers.

The care of inner tubes.

The causes of tyre deterioration, and proper storage.

What to demand in rims and flaps.

It formerly was necessary to gather this information in haphazard manner, wherever bits of it might be available, but the timely booklet prepared by the manufacturers of Firestone tyres gives it all in a form that fits the pocket of either motor car or coat. Under approximately the same headings as are given above all the facts essential to getting the utmost mileage from tyres are discussed in clear, simple language.

An easy guide to knowledge of the proper tyres is found, for instance, in the table of weights that a tyre will support without undue strain. A 34×4 tyre will sustain a weight of 650 pounds in the front and 800 pounds in the rear—a total weight of 2900 pounds. Clearly, a 30-hundred-weight car should carry larger tyres.

A timely word is said regarding inflation of tyres in hot weather, and the old bugbear of danger of blow-outs from over-inflation is vanquished. An increase in temperature of 20 degrees increases the pressure by only three pounds. Thus, if a tyre is inflated to 70 pounds pressure, at a temperature of 60 degrees, an increase of temperature to 90 increases the tyre pressure only to 75 pounds.

The motorist should avoid driving in ruts. The sides of tyres are unnecessarily scraped, and in the long run the tyres are bound to deteriorate. Driving in a rut with the tyres partly deflated is the height of tyre abuse.

Much has been said, but much more can still be said, of the foolishness of allowing tyres to stand in oil. Oil is a solvent of rubber, and the ultimate effect is as certain as if clothing were allowed to stand in acid. Even the grease that often is spattered upon tyres from leaking differentials should be wiped off at the end of the day.

The necessity of prompt repair of punctures and cuts is obvious. It is a good plan to have a workman experienced in handling tyres, inspect them at least once a week, and carefully fill all cuts in the rubber or fabric. Water is almost as damaging in cuts as stones and other foreign substances, for while rubber is waterproof, the basic fabric is not.

It would be hard, within the compass of this article, to include all the good advice of the 50-page booklet from which the above information has been taken. It should be in the hands of every motorist, and, what is more, the knowledge in it should also be in his head Many miles could be saved by following to the letter the principals there laid down.

STATEMENT OF RECEIPTS AND DISBURSEMENTS OF SALT REVENUE.

For the period from 21st May, 1913, to 31st December, 1913.

RECEIPTS.	$
1. Collections per District Inspectorates	14,501,802.33
2. Remittances from Government Transportation Offices	3,074,349.37
3. Interest credited by Group Banks	8,784.07
Total Dollars ...	17,584,935.77

DISBURSEMENTS.	$
A. Administration Expenses defrayed	2,064,229.65
B. Transfer charges and Loss by Exchange	831,421.74
C. Special Government Withdrawals	1,248,330.99
D. Charges and Obligations secured on Salt Revenue ...	—
E. Balances in various Offices	544,918.23
F. Balances in Bank of China	756,745.09
G. Transfers in Transit to Group Banks	1,137,070.29
H. Balances in Group Banks	11,002,219.78
Total Dollars ...	17,584,935.77

SUMMARY OF REVENUE AND EXPENDI

For the period 21st May, 1913,

1.	2.	3.	4.	5.	6.	7.	8.	9.
			Revenue Receivable.					Admini-
District Inspectorates in Producing Districts.	Quantity of Salt Released.	Approximate Average rate of Direct Duty imposed on salt released.	Direct Duty.	Miscellaneous Collections.	Total.	Revenue Received.	Revenue Outstanding at 30/9/13.	Incurred.
	Piculs Ssu-ma scale.	$	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Fengtien	1,535,780	.690	1,050,508.50	50,129.24	1,100,637.74	244,906.95	864,730.79	150,931.06
Changlu (*a*)	1,438,941	1.403	2,019,094.61	7,275.14	2,026,369.75	1,784,392.30	241,977.45	298,455.24
Shantung	792,692	1.186	940,001.46	344,970.42	1,284,971.88	772,552.75	512,419.13	69,689.50
Hotung	290,263	1.254	364,234.00	---	364,234.00	281,798.72	82,435.28	119,569.05
Lianghwai (*b*)	1,442,666	.371	535,647.93	317,050.92	852,698.85	834,034.69	18,664.25	550,600.06
Liangcheh	102,837	2.031	208,937.68	233,559.29	442,496.97	442,496.97	—	108,949.42
Fukien (*c*)	424,272	.530	224,864.08	87,282.35	312,146.43	312,146.43	—	52,625.95
Kwangtung	519,613	1.514	786,441.00	613,197.60	1,399,638.60	1,391,891.76	7,746.84	166,583.76
Total	6,547,064	.938	6,138,729.26	1,653,464.96	7,792,194.22	6,064,220.48	1,727,973.74	1,517,404.04

Note.—(*a*) The amount of $298,455.24 shown under the heading Administration Expenses incurred in the Changlu District includes $62,071.08 for expenses of the Central Salt Administration and Chief Inspectorate.

(*b*) The Lianghwai figures merely show revenue and expenditure in Hwaipei and Huainan and do not include revenue and expenditure in the four Provinces, South Anhui, Kiangsi, Hunan and Hupeh.

(*c*) In the Fukien Province salt is purchased, transported and sold on behalf of government and the direct duty on salt transported is credited to the Salt Revenue Account by the Salt Commissioner.

SUMMARY OF REVENUE AND EXPENDI,

For the period 1st October, 1913-

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
			Revenue Receivable.							Admini-
District Inspectorate in Producing Districts.	Quantity of Salt Released.	Approximate Average rate of Direct Duty imposed on Salt released.	Direct Duty.	Miscellaneous Collections.	Total.	Revenue Outstanding at 1/10/13.	Total.	Revenue Received.	Revenue Outstanding at 31/12/13.	Incurred
	Piculs Ssu-ma scale.	$	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Fengtien	729,253	.698	508,783.90	31,622.07	540,405.97	864,730.79	1,405,136.76	483,560.38	921,576.38	94,439.66
Changlu (*a*)	1,974,757	1.137	2,245,746.73	859,350.59	3,105,097.32	241,977.45	3,347,074.77	2,552,224.82	794,849.05	226,108.43
Shantung	505,381	.983	496,932.95	24,505.97	521,438.92	512,419.13	1,033,858.05	816,277.18	217,580.87	48,494.39
Hotung	282,383	1.271	359,025.91	—	359,025.91	82,435.28	441,461.19	356,389.23	85,071.96	51,637.83
Lianghwai (*b*)	1,892,063	.361	683,862.48	532,439.43	1,216,301.91	18,664.25	1,234,966.16	1,154,953.20	80,012.96	391,462.72
Liangcheh	381,404	1.610	614,115.82	226,685.69	840,801.51	—	840,801.51	799,817.46	40,984.05	72,335.90
Fukien (*c*)	337,573	.530	178,914.35	145,981.30	324,895.65	—	324,895.65	324,895.65	—	36,222.55
Kwangtung	931,320	1.513	1,409,568.00	539,895.93	1,949,463.93	7,746.84	1,957,210.77	1,949,463.93	7,746.84	77,381.20
Total	7,034,134	.924	6,496,950.14	2,360,480.98	8,857,431.12	1,727,973.74	10,585,404.86	8,437,581.85	2,147,823.01	998,082.68

Note.—(*a*) The amount of $226,108.43 shown under the heading Administration Expenses incurred in the Changlu District includes $57,164.49 for Expenses of the Central Salt Administration and the Chief Inspectorate.

(*b*) The Lianghwai figures merely show revenue and expenditure in Huaipei and Huainan and do not include revenue and expenditure in the four Provinces, South Anhui, Kiangsi, Hunan and Hupeh.

(*c*) In the Fukien Province salt is purchased, transported and sold on behalf of government, and the direct duty on salt transported is credited to the Salt Revenue Account by the Salt Commissioner.

STATEMENT OF REVENUE AND EXPENDITURE IN THE DISTRICT OFFICES.

For the period from 21st May, 1913, to 31st December, 1913.

	$		$
1. Revenue Receivable	16,649,625.34	*A.* Administration Expenses incurred	2,515,486.72
2. Sundry Creditors' Accounts—Expenses outstanding at 31/12/13	451,257.07	*B.* Transfer Charges and Loss by Exchange	831,421.74
		C. Special Government Withdrawals	1,248,330.99
		D. Charges and Obligations Secured on Salt Revenue	—
		E. Sundry Debtor Accounts—Revenue outstanding at 31/12/13	2,147,823.01
		F. Transfers to Group Banks	9,056,156.63
		G. Balances in Bank of China at 31/12/13	756,745.09
		H. Balances in Various Offices at 31/12/13	544,918.23
Total Dollars	17,100,882.41	Total Dollars	17,100,882.41

TURE IN THE DISTRICT OFFICES.

to 30th September, 1913.

10. stration Expenses. Drawn.	11. Outstanding at 30/9/13.	12. Special Government Withdrawals. Withdrawn.	13. Refunded.	14. Outstanding at 30/9/13.	15. Transfer Charges and Loss by Exchange.	16. Transfers to Group Banks.	17. Cash Balances, at 30/9/13. In Bank of China.	18. In Various Offices.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
67,795.52	83,135.54	—	—	—	—	—	177,111.43	—
172,900.69	125,554.55	310,091.21	267,224.96	42,866.25	43.71	726,016.34	842,565.31	—
55,259.61	14,429.89	159,189.07	90,397.35	68,791.72	*Cr.* 49.87	—	644,615.64	3,935.65
119,569.05	—	133,682.64	—	133,682.64	—	—	—	28,547.03
550,600.06	—	246,364.03	4,599.57	241,764.46	—	—	32,594.24	9,075.84
86,211.05	22,738.37	776,035.60	602,442.29	174,493.31	165.00	60,000.00	37,393.40	84,324.21
52,625.95	—	187,149.61	—	187,149.61	7.34	649.66	—	71,713.87
141,747.02	24,836.74	796,487.42	—	796,487.42	—	—	—	453,657.32
1,246,708.95	270,695.09	2,609,899.58	964,664.17	1,645,235.41	166.18	786,666.00	1,734,190.02	651,253.92

TURE IN THE DISTRICT INSPECTORATE OFFICES.

to 31st December, 1913.

12. stration Expenses. Drawn.	13. Outstanding at 1/10/1913.	14. Outstanding at 31/12/13.	15. Special Government Withdrawals. Withdrawn.	16. Refunded.	17. Outstanding at 1/10/13.	18. Outstanding at 31/12/13.	19. Transfer Charges and Loss by Exchange.	20. Transfers to Group Banks.	21. Cash Balances at 31/12/13. In Bank of China.	22. In Various Offices.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
10,349.42	83,135.54	167,225.78	—	—	—	—	*Cr.* 10,961.07	495,173.45	162,966.09	3,143.92
143,473.96	125,554.55	208,189.02	—	32,600.00	42,866.25	10,266.25	4,846.58	2,719,296.52	559,773.07	—
62,924.28	14,429.89	—	—	—	68,791.72	68,691.72	18,380.37	1,378,902.01	4,538.39	82.81
51,337.83	--	300.00	—	—	133,682.64	133,682.64	—	—	—	333,598.43
391,462.72	—	—	46,477.71	236,288.82	241,764.46	51,953.35	1,684.37	955,215.63	3,661.80	34,409.87
30,159.93	22,738.37	64,914.34	—	174,493.31	174,493.31	—	*Cr.* 621.26	962,541.26	25,805.74	78,052.71
36,222.55	—	—	—	—	187,149.61	187,149.61	3,464.29	306,732.70	—	50,189.98
91,590.01	24,836.74	10,627.93	—	—	796,487.42	796,487.42	814,462.27	1,451,628.46	—	45,440.51
817,520.70	270,695.09	451,257.07	46,477.71	443,382.13	1,645,235.41	1,248,330.99	831,255.56	8,269,490.63	756,745.09	544,918.23

RESUME OF STATEMENTS SHOWING THE RESULT OF THE OPERATIONS OF THE GOVERNMENT AND OTHER TRANSPORTATION OFFICES.

During the Period 21st May to 31st December, 1913.

Name of Office.	Total Revenue due by the Transportation Office.	Total Revenue Placed to the Credit of the Government in Bank of China.	Working Expenses: Establishment and Contingent Charges and Police Expenses.	Amount paid over to the Group Banks.	Balance still Outstanding on 31st December, 1913.
Hupeh	$ 6,393,605.76	No details, see remark.	$ 152,327.37	$1,658,635.51	$ 4,582,642.88
Hunan	4,519,595.94	No details, see remark.	191,210.25	247,173.78	4,081,211.90
Kiangsi	4,601,262.92	No details, see remark.	70,309.30	610,291.64	3,920,661.98
Anhui	3,413,634.99	No details, see remark.	87,673.25	149,864.51	3,036,335.40
Kirin	597,453.04	$ 89,662.69	131,410.06	See remark	507,790.35
Heilung Chiang	475,472.48	Nil	85,356.74	Nil	475,472.48
Changlu	1,957,250.40	1,586,462.10	438,885.00	See remark	370,788.30
Jehol	47,879.00	10,000.00	21,349.00	Nil	16,530.00
Kalgan	274,994.01	148,932.96	131,577.32	Nil	Nil / 5,216.27 (*Profit*)
Chin Pei	167,180.43	49,060.90	125,924.80	14,873.55	26,382.08
Hotung (Shansi)	281,560.94	10,529.12	No returns	See remark	271,031.82
Shantung	161,702.52	155,561.17	12,390.00	See remark	6,353.89
Cheng Yeng Kwan	334,156.28	73,000.00	No returns	Nil	261,156.28
Su Wu Shu	444,940.43	393,540.75	10,673.77	393,510.38	31,725.91
Grand Total...	$23,670,689.14	$2,516,449.69	$1,468,086.87	$3,074,349.37	$17,581,729.38

Remarks.

The amounts at credit in the Bank of China at Hupeh, Kiangsi and Anhui and in the Bank of Communications at Hunan, include the Merchants' share of profit and the amounts are consequently not shown. The amount received on account of Anhui, by the Group Banks, should also include $139,761.83 (at book rate) which was paid over to the Acting Commissioner of Customs, Tatung, under the Loan agreement.

The revenue of Kirin was merged in the revenue paid by merchants and was remitted to the Group Banks at Shanghai by the District Inspectorate of Fengtien. The revenue from the Changlu, Hotung, Shantung and Cheng-Yeng Kwan Transportation Offices was paid into the Bank of China and was merged in the collections made by the District Inspectorates and transferred to the Group Banks for credit of the respective District Inspectorates. Kalgan Office showed a profit of $5,216.27. In Chin Pei, the working expenses, amounting to $33,295.30 for the months September/December, were only deducted from the Bank of China's balance in January, 1914, and also $126.45 loss on conversion.

Difference on conversion of Mexican $33,593.57, collected at market rate but entered at fixed book rate

ANALYSIS OF ADMINISTRATION EXPENSES

1st October to 31st December, 1913.

CENTRAL SALT ADMINISTRATION (鹽務署) AND CHIEF INSPECTORATE.

Date 1913	Yen Wu Shu Fixed $	Yen Wu Shu Contingent $	Chief Inspectorate Fixed $	Chief Inspectorate Contingent $	Total $
October	5,372.53	2,654.96	5,423.06	539.82	13,990.37
November	6,392.09	3,105.59	6,296.83	4,465.42	20,259.93
December	6,657.71	848.45	13,420.35	1,987.68	22,914.19
Total...	18,422.33	6,609.00	25,140.24	6,992.92	57,164.49

(*a*).—One Picul Ssu-ma scale equals 140 lbs. avoirdupois.

(*b*).—The quantities entered as Ssu-ma Piculs are, in some Districts, approximate only.

(*c*).—Direct Duty in the case of Fukien District represents the payments made by the Salt Commissioner on the estimated quantity of salt transported which is based on the allotment last in force during the late Ching dynasty.

(*d*).—Miscellaneous Collections include all taxes, fees and cesses payable on account of salt, over and above the Direct Duty levied at the time of issue from the salt works and depots.

(*e*).—The figures representing the transactions in the Kwangtung District are provisional. The loss on exchange is due to acceptance of paper currency at nominal value, in payment of taxes, the average value for the period being Canton Note Dollars 100=Hongkong Dollars 63.88.

(*f*).—The following rates of exchange have been used:—

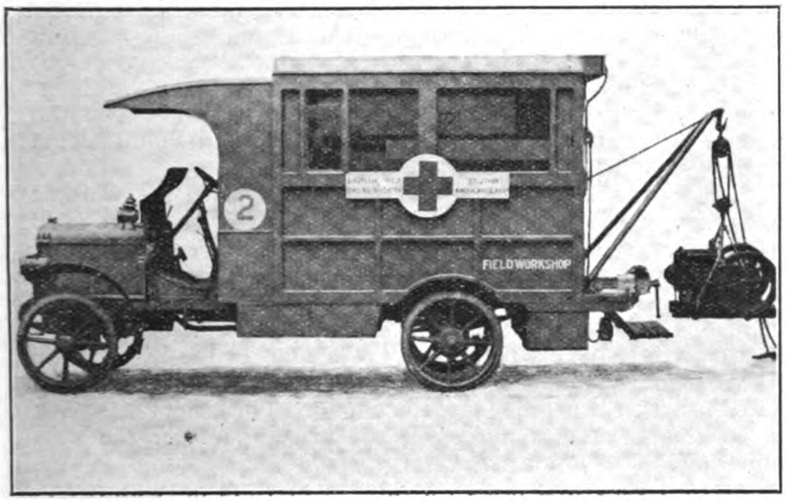
$100=Kuping Tls. 66.666=Shanghai Tls. 73.066=Silver Yen 106.13055

(*g*).—"Fixed Charges" comprise salaries and wages, and "Contingent Charges" comprise the cost of maintaining establishments and travelling allowances and all miscellaneous and fluctuating expenditure.

Commercial Car Workshop

Commercial Cars, Limited, has presented a one ton chassis to the British Red Cross Society which has equipped the chassis as a field workshop of which the following is a detailed account:

The workshop is fitted on a 1 ton B.C. type live axle chassis manufactured by Commercial Cars. Ltd., Luton, after designs by the Royal Automobile Club Engineering Department, of which Mr. F. W. Hudlass is the chief engineer. The general body arrangements, the hoisting gantry, and the general equipment of tools and parts are excellently thought out and many compliments have been paid the Royal Automobile Club on the finish of this first class machine. The aim of the designers has been to provide a compact little lorry that is not only pcaable of



Workshop Car Ready for Repair Job

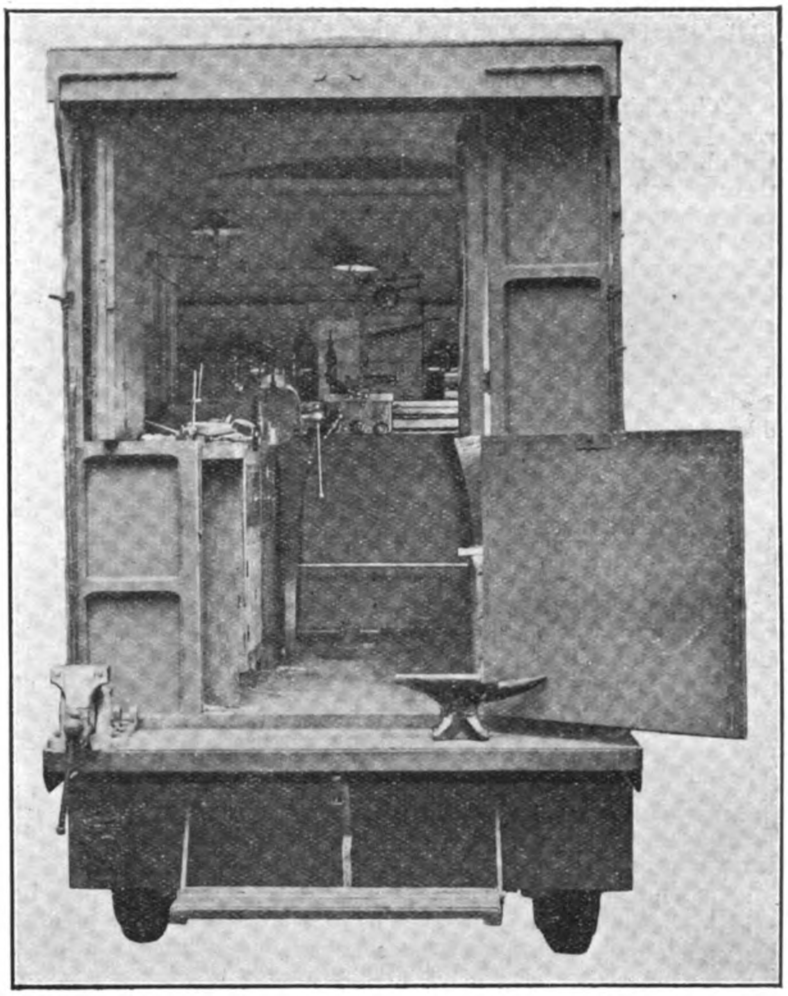
salving a car which has had a bad smash, but also of carrying out any small repairs found to be necessary.

On the rear of the vehicle sheer legs are provided which project about 4 ft. Upon these can be suspended the front or rear of a car which, in this position, can be towed on the two remaining wheels. The sheer legs also can be used for lifting engines and gearboxes out of the frame. They stand on a large rear platform step which is a bench for heavy work, and upon which is fixed a heavy Vice. The interior of the vehicle is fitted up with bench, racks, and cupboards for tools, etc., also a 5½ inch Centre Lathe and Emery Grinder, the former being driven from the clutch shaft by a simple arrangement of countershafts.

The tool equipment consists of blacksmiths tools sufficient for small forgings and the straightening or bending of any parts; tinmans and copper smiths tools, for the purpose of soldering and brazing of any reasonably sized part, heat being derived from a large blow-lamp fed by petrol; fitters tools, such as are used for dismantling, repairing, and re-erecting any part of the motor vehicle, and which include material and equipment for white metalling bearings, with scrapers for re-fitting same, also a small surface plate and a comprehensive selection of measuring and reference tools; turners tools, including drills, reamers, expanding mandrills, etc., in sufficient quantity to execute extensive repairs.

The material supplies include tool steel, nickel steel, mild steel, and special steel for keys in a variety of sizes, also bronze and brass rods of various sections; sheet metal, wire, brake-lining materials, packing and jointing materials, and a large selection of useful sizes of bolts, nuts, washers, split pins, taper pins, etc.

Each repair van is sent out in charge of a competent man with a suitable helper; and if possible, the helper is chosen for his knowledge of some particular craft with which the charge hand is not thoroughly acquainted. The vehicle is lit by acetylene gas, and several small hand-lamps provide light for work at night.



Complete Repair Shop on "Commer Car" Chassis

The head lamps provided are of the self-contained type so that they can also be used as a hand-lamp when required.

Great care has been given to the selection of the spanners, of which a large variety are included in the equipment, so as to provide if possible any particular type from the largest to the smallest which may be required to negotiate nuts in an inaccessible position.

A glance at the list of the tools provided would be sufficient to prove to the practical man that these vehicles are in every way as complete, if not more so, than the average county garage.

PHILIPPINE LUMBERING

Cadwaller-Gibson Lumber Co., Bataan, has increased its forest operations since the rains ceased. More laborers are being employed every day and railway construction is being pushed towards the Lamac forest reserve where a heavy stand of timber awaits the company. On this road a new concrete bridge has been started and is expected to be open for traffic by February. The bridge is 100 feet long and 50 feet high and is the longest the company has built. At the present the Cadwaller-Gibson Lumber Co.

The Kolambugan Lumber & Development Co., Kolambugan, is constructing a larger mill, equipped with bandsaws, live rolls, log turners, edgers, trimmers, etc.

Mr. Bolander of the Emerson Hardwood Co. of Portland, Ore., inspected and graded some 52,000 board feet of tanguile, red lauan, white lauan and almon at Kolambugan. This lumber is for export to the United States.

Port Lebak Lumber Co. recently filed papers of incorporation and will conduct their business at Lebak, Cotabato, Mindanao, where the company has a mill of 17,000 board feet capacity per day. This mill has been operated during the past year by Mr. Kidwell, president of the Cotabato Lumber Co., who is a member of the new concern.

W. A. Wiren, manager of Dungon-Dungon plantation in Bangui, Ilocos Norte, recently erected a sawmill on the hacienda. It is equipped with a 30-horsepower boiler, a 25-horsepower engine and circular saw. It has a capacity of 4,000 board feet a day. The mill is now working on government as well as private contracts.

CHINESE WALNUT INDUSTRY

The Chinese or Manchurian walnut (a type of the *Juglans regia*) is grown in a number of districts in the Provinces of Chihli, Shansi, Honan, and Shantung. In Chihli Province the three principal districts are Lanchow and Changli, which adjoin each other, and are about 100 miles north and east of Tientsin on the line of the Peking-Mukden Railway; also the district of Changpingchow, which lies about 30 miles north of Peking. These three districts produce the best grade of walnut which is exported from Tientsin. In Shansi Province the district of Fenchowfu produces large numbers—in fact, walnut trees may be found in almost any of the hilly districts in the four provinces mentioned. The greater part of the nuts exported from Tientsin, however, are raised in Chihli Province.

THREE GRADES

There are three grades of walnuts which are known to the trade here:

First. The double-shelled nut, which consists of two shells in addition to the green outer husk. This brings the lowest price of any grade on account of the difficulty of extracting the kernel.

Second. The medium hard-shelled nut. This forms the bulk of the nuts raised; it is grown in a great many different districts, and is exported from Tientsin to America in large quantities. The shells are of varying degrees of hardness.

Third. The paper-shelled nut, which is grown only in the districts of Changlihsien and Changpingchow. The shells of these nuts are very thin, and crack easily in the hand.

The nuts seldom grow in the wild state, neither can they be said to be highly cultivated. The walnut trees were planted originally, and are cultivated more or less by the Chinese farmers, but no attempt has been made to improve the stock by grafting or other methods. Each farmer owns a few trees, perhaps 25 to 100.

HARVESTING AND SHIPPING

When the harvest season arrives, the local dealer buys up the farmer's crop and brings it to Tientsin, where it is sold to the Chinese wholesale commission merchant, or to the compradore of a foreign firm, and by him in turn sold to the foreign exporting house.

The harvest season for the soft shelled walnut is from September 10 to 15, and for the hard shelled three to four weeks later. The greater portion of the nuts are brought to Tientsin and exported in the shell, but some of them are shelled in the interior and the kernels brought to Tientsin in thin wooden cases of various sizes holding 50 to 100 pounds each. These are repacked by the foreign exporter in strong wooden boxes before shipping abroad. In some cases these boxes are provided with holes over which wire netting is placed to allow ventilation, while by other firms this precaution is not deemed necessary. The nuts in shells are exported in bags weighing 100 pounds each.

The export of walnuts to the United States has developed only wi hin a few years past. Previous to 1910 very little had been done in this line, but in that year on account of good prices in America one or two firms found that a good business could be developed. In the following year, 1911, numbers of firms made contracts for shipment. This induced high local prices; and the Chinese, in their eagerness to get the nuts to the market, harvested them before they were fully ripened, with the result that the nuts arrived in the United States in very poor condition, the American importers, in some cases, refusing to take delivery. This gave the Chinese walnut business a bad name, with the result that exports invoiced at Tientsin to the United States dropped from $155,127 gold in 1911 to $25,710 gold in 1912. Last year, however, showed an almost complete recovery, the declared exports from this consulate general to the United States amounting to $141,133 in 1913. The total amount of walnuts exported from Tientsin to all countries during 1912 and 1913 is shown below in the statistics of the Chinese Maritime Customs; converted into American terms:

Destination.	1912 Pounds.	1912 Value. gold.	1913 Pounds.	1913 Value. gold.
Hongkong	569,990	$9,896	688,800	$14,815
United Kingdom	134	6	... .	....
Japan	153,866	7,098	1,609,731	40,230
Russia	35,459	508	....	....
Chinese ports	3,743,734	60,981	4,026,036	88,677
United States	....	....	18,579	471
Total	4,503,184	78,489	6,341,228	144,193

It will be noted that the exports to the United States are given as only 8½ tons in 1913. This was the amount of the direct shipments from Tientsin. The great bulk of the walnuts were transshipped at Shanghai for shipment to the United States, either via the Suez Canal to New York and Boston, or by way of the Pacific ports. In both cases they appear on the customs returns as shipments to Chinese ports. Then, too, it must be noted that the values in the customs returns are very low.

In addition to the nuts exported the Chinese use large amounts both for eating and for the making of cakes and candies. Quantities are shipped to Shanghai and South China for the same purpose.

The prices paid by the foreign exporters to the Chinese have risen considerably within the past few years. In 1910 medium hard-shelled nuts could be bought at an average price of 4.20 taels per picul. This equaled, at the average rate of exchange then prevailing, about $1.80 U. S. currency per 100 pounds. During 1913 the price of a similar grade of nut was about 6.50 to 7.50 taels per picul. Allowing for the higher rate of exchange which prevailed during that year, this was equal to $3 to $3.50 U. S. currency per 100 pound. The prices paid for the nut kernels were about double the prices paid for the nuts in the shell.

SHANTUNG PROVINCE GROWS ABOUT 2,000 TONS OF WALNUTS.

A considerable number of walnuts are exported from Shantung annually. The best walnuts shipped from this province come from the southern section. Shippers say that the business is risky for the reason that the nuts do not run even. Importers often find large quantities of worthless nuts mixed in with the better qualities, making it necessary to refuse full payments for shipments. The Government compiles no statistics as to the production of crops, so that one can only make estimates. It is estimated that about 2,000 tons of walnuts are shipped annually from this province, which has an area of 55,000 square miles and a population estimated at 30,000,000. Most of the nuts go to Austria, Holland, and Germany. Walnuts mostly grow wild in this province; that is, it can scarcely be said that they are cultivated for market purposes.

GLASS FACTORIES AT POSHAN

In the neighbourhood of Poshan have existed for centuries past small glass factories. The hills provide abundant quartz sand, limestone, and coal. The ware produced is well known all over China, especially in the shape of small snuff-bottles, laboriously painted on the inside, lanterns and screens made of coloured spun glass, and thousands of other small articles, such as mouthpieces for pipes, children's toys, beads, and bangles. The value of this ware does not exceed Hk. Tls. 40 per picul, and the annual export *via* Tsingtau is about 7,000 piculs. It is almost entirely a family industry, and the ovens used do not hold above 60 catties of glass. In 1907 a factory with foreign machinery was started by a Chinese company, with a nominal capital of 1 million taels, of which the government provided Tls. 100,000; only half of the capital was paid up, and was practically used up for the newly erected buildings and machinery. The factory started with seven German experts, of whom none remain now. In 1909 about 5,000 cases of 10 square metres of window glass was the whole output in that line, with a possible 50,000 cases; but lately that branch was stopped altogether, and only tumblers and soda-water bottles are now manufactured. The quality of the rolled glass was low. In 1910 the company got permission to start a lottery, in order to procure more capital; the financial position has, however, not improved, and the factory at present can hardly pay expenses.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

S.M.R. Co.'s Regular General Meeting.—The 14th regular general meeting of the South Manchuria Railway Company's shareholders was held at the Tokyo Chamber of Commerce. The meeting was presided over by Baron Y. Nakamura, President, who explained the Co's position upon the proposed splitting-up of the Company's shares of Y200 each into shares of Y100 each. A motion was advanced to resolve each into four shares of Y50 each, but it was only presented in the shape of a hope by some shareholders, in view of the overwhelming majority favouring the Y100 proposition, which was passed unanimously. On the motion of Mr. K. H. Okura, a committee of five was nominated for electing the successors to the present officers after that date. The committee comprised Messrs. Okura, Hosino, Kume, and Nakaya, in addition to the Chairman. The committee repaired to a private room to fix upon their choices, which were reported to the meeting as Messrs. Nakahashi, Kawakami, Magoshi and Ohashi (all re-elected) and Mr. K. Koyama, President of the 43rd Bank, Osaka, as successor to Mr. Iwashita.

The Chairman next proceeded to report the condition in which the Company stands, concluding with the Company's splendid prospect as the aftermath of the peaceful solution of the Sino-Japanese issue. Then the statement of accounts, as reproduced below, was submitted. Hopes were expressed that the Company's shares would be exempted from income and incidental taxes and also would be included in the approved list of securities of the Nippon Ginko. A few other propositions were laid, but the propositions presented by the Company's Directorate were adopted without division.

STATEMENT OF ACCOUNTS

For the Fiscal Year Ended March 31st, 1915.

GENERAL BALANCE SHEET

on March 31st, 1915

ASSETS

Capital unpaid		Y 36,005,720.000
Property taken over from the Japanese Government		100,000,000.000
Stores		6,213,444.717
Coal in stock		979,395.719
Shares in other companies		1,188,273.000
Capital expenditure:		
Railway	Y 73,498,298.937	
Steamship	4,970,435.698	
Electricity	4,916,260.455	
Gas	1,383,846.613	
Harbour & Wharves	12,595,895.165	
Mines	15,042,197.414	
Workshops	6,261,224.304	
Hotels	2,016,880.162	
Land Improvements	4,740,802.165	
Land	10,621,987.721	
Buildings	11,541,158.876	
	Y 147,588,987.501	
Discount on debenture issue, less amount written off		4,362,368.680
Sundry debtors		2,627,800.967
Payments on Suspense a/c.		2,546,224.935
Payments on a/c. of uncompleted works (Workshops)		317,627.315
Payments on a/c. of uncompleted works (Construction)		128,612.091
Deposits		7,418,749.693
Agencies		458,243.370
Postal & Revenue		8,404.035
Cash in hand and at Bank		322,117.164
Total		Y 316,092,379.027

LIABILITIES

Capital Authorized		Y200,000,000.000
Capital subscribed		Y 160,000,000.000
Reserve prescribed by Law		1,491,252.620
Special reserve		10,900,000.000
Debentures		117,156,000.000
Sundry creditors		2,646,439.164
Receipts on suspense a/c.		10,781,426.758
Employees' savings deposits		2,860,314.270
Guarantee money		90,550.200
Balance brought forward from Last Term	Y 2,625,295.623	
Balance for the Term	7,541,091.362	
		10,166,386.985
		Y 316,092,379.027

PROFIT AND LOSS ACCOUNT FOR THE FISCAL YEAR

Ended March 31st, 1915.

DR.

To Railway expenditure	Y 8,345,286.210
„ Steamer	1,220,405.970
„ Mining	11,858,860.420
„ Harbour	1,963,966.720
„ Land	2,864,199.550
„ Hotel	309,800.550
„ Electricity	694,875.240
„ Gas	114,912.090
„ Sundry losses	424,085.203
„ General Management Expenditure	3,088,128.760
„ Interest on Debentures	5,564,910.000
„ Writing off Discount on Debentures issue	680,093.280
„ Balance for the Term	7,541,091.362
	Y 44,670,616.355

CR.

By Railway receipts	Y 23,216,721.520
„ Steamer	1,051,332.500
„ Coal	14,075,823.540
„ Harbour	1,290,612.140
„ Land	1,778,544.650
„ Hotel	253,001.600
„ Electricity	1,101,737.930
„ Gas	303,243.950
„ Sundry	75,049.525
„ Interest a/c.	624,558.890
	44,670,616.355

Net profit disposed as follows:—

To Reserve prescribed by Law	377,054.570
„ Dividend on Government shares	
„ Dividend to shareholders, other than the Government, at the rate of 6 per cent, per annum	1,420,000.500
To Supplementary dividend to shareholders other than the Government, at the rate of 2 per cent per annum	478,333.330
To Special reserve	2,500,000.000
„ Bonus to Officers	300,000.000
„ Honorariums for Retired officers	35,000.000
„ Balance carried forward to the next term	2,560,969.085
	10,166,386.985
By Balance brought forward from the preceding term	2,625,295.623
By Balance for the term	7,541,091.362
	10,166,386.985

S. M. R. Co. Traffic Returns.—During the month of June the S. M. R. Co. Traffic Returns ran as under:—

COMPARED WITH LAST YEAR

Passenger receipts...	Y 271,703.09	— Y 52,753.58
Goods receipts	1,062,248.03	+ 102,145.62
Warehousing „ ...	21,821.74	
Miscellaneous	52,347.19	
	1,408,120.05	

The total traffic receipts from April last to June amounted to Y5,698,277.22, being an increase by Y934,534.77 over the corresponding period of last year.

Conditions in Shantung.—At Moji an interview on the condition of the Shantung Railway and the present situation was given by Mr. T. Fujita, the superintendent of the Railway, who has been recalled by the Government.

The captured lines have been all repaired, he stated, but it will take two months more to complete certain repair works. The receipts of the lines are 250,000 taels or only half the figure netted by the Germans. The rolling stock of the railway is very incomplete and accommodation in cars is too bad to give any degree of satisfaction to passengers.

Owing to diplomatic troubles, stated Mr. Fujita, the Chinese merchants are holding off from purchasing, evidently preferring to wait further developments. Accordingly trade is now in suspense. No cargo from Tsinan for Europe comes down to Tsingtao and the port is very lonely.

The mines along the railway lines are partially worked while water is being pumped out of the pits. The daily output is now limited to 500 tons. Japanese residents in the interior are strictly watched by General Chang Sun's troops under the pretext of protection.

New Line in Manchuria.—The railway line extending 65 miles between Supingchiai to Tsengchiatang in Manchuria has been decided to be undertaken by the South Manchurian Railway Company and steps are being taken to build the line. The line in Eastern Inner Mongolia to join the above line at Taonanfu will soon be prepared to be built.

Wants to Buy Cranes.—Through the Harbin consulate the commercial department of the Chinese Eastern Railway has cabled to the United States requesting quotations on three powerful steam locomotive cranes, railway scales, and a large order of tarpaulins to cover goods exposed at railway stations, where there are insufficient warehouses for storing them against the weather.

Direct Russo-American Freight Service.—The assistant chief of the commercial department of the Chinese Eastern Railway states that direct Russo-American freight transportation between Vladivostok and American Pacific coast ports has been arranged. For the present only Russian steamers of the North Steamship Co. and the Volunteer Fleet are to be placed on the run, but it is expected that later on American steamers also will be engaged on this route. It has been suggested that in connexion with the opening of this new commercial route a Russo-American chamber of commerce should be established at Harbin, similar to the one organized at Petrograd.

American Cars Ordered.—The Chinese Eastern Railway has placed an order for 10,000 steel freight cars in the United States. These cars are to be brought to Harbin in sections and assembled there, and the railway authorities are already making preparations for putting them together at the Harbin shops. An official states that the cost of this work alone will be in excess of $250,000 United States gold. The work will be continued night and day, and the expenses for lighting the grounds will total $12,500. It is said that in addition to the 2,000 laborers already employed 3,000 more will be required for assembling these cars at the railway shops. The effort will be made to work upon 300 cars at a time, and it is expected that from 50 to 60 cars will be completed ready for use each day.

Siam Railway Receipts.—Following are receipts from 836 klm. of broad gauge lines of the Siamese Railways for the current year:

	Approximate Year 2458	Actual Year 2457
Passengers	T224,000.	240,466.
Goods	203,000.	126,623.
Others	3,970.	3,602.
Total	430,970	370,691.

The total April, 1914, to March 1915, was 945,206, as 944,919.

The new Yokohama station now under construction will be completed by the end of the present month at the latest and opened in the early part of July. The new building is surrounded on three sides by rails just as those often met with in Germany. The style is the modern Renaissance and triangular.

Hankow-Ichang Bridges.—Tenders are called for the supply of about 845 tons of steel bridges as follows:

1 Steel Bridge of a span of 21 meters.
1 Steel Bridge of a span of 31. 5 meters.
2 Steel Bridges of a span of 42 meters each.
4 Steel Bridges of a span of 60 meters each.

Tenders are to be forwarded to the Director General of the Han-Yueh-Chuan Government Railways at Hankow up to September 25, 1915 at 6 p.m.

Tenders presented up to that date will be opened in the presence of the bidders at the Director General's Office at Hankow. Tenders have been called for also in Germany, France, Great Britain and the U.S.A. for which the opening day has been fixed also for September 25, but acceptance of tender will not take place until when result of all tenders has been received at Hankow.

Embargo on Orient.—The Western Pacific has announced a partial embargo on traffic destined for the Orient and Australia from San Francisco because of the difficulty in obtaining space on ocean steamers. Agents will be authorized to sign bills of lading on shipments for China, Japan, Australia, New Zealand and the Philippine Islands provided specific bookings can be made.

Amur Railway.—The struggle in Europe has not made Russia let up in the least on her work in the construction of the Amur Railway. The western and middle sections of the line were opened last August, and the traffic on the eastern section was started on March 14, although the service is still limited to three trains a week. The iron bridge across the Amur River is still uncompleted. Last winter rails were laid on the frozen stream and communication with Khabarovsk was maintained, but when ice melted ferry boats had to be employed. The bridge, according to the original plan, is to be completed next spring, but owing to the lack of material and labor instanced through the war, the work will be delayed.

With the advancement of work on the Amur line, the improvement of the Usuri Railway, to be connected with the former, is made necessary, and a sum of five million roubles is to be disbursed during the current year for the purpose. One million roubles will be spent for the construction of an indirect line to Kivarisowa, another one million for expenses of double-tracking the section between Vladivostock and Nikolisk, while the balance will be used for the Khabarovsh and Nikolisk section.

Manila Railway Tariff.—Should the board of public utilities approve the new base tariffs proposed by the Manila Railway company to take effect on August 1, second class passenger accommodations will be abolished, first class rates will be somewhat reduced, and those of third class passengers correspondingly raised. Where in the past there have been but four classes of freight there will be seven. On the first four classes rates are raised, but the addition of the further number permits of lowering the charges upon articles most commonly shipped over the line. A general average of the change shows approximately a 10 per cent increase. The proposed passenger rates, covering only first and third class accommodations, are as follows: First class—1 to 100 kilometers, P.04 per kilometer (3.2 cents gold per mile), 101-200, P.035; 201-300, P.03; 301 upwards, P.026. Third class—1 to 100 kilometers, P.022; 101-200, P.02; 201-300, P.018; 301 upwards, P.016.

Shanghai's Railless Cars.—The railless electric cars that were put on several months ago by the Shanghai Tramways Company and abandoned because they tore up Fukien Road have been put on again. Fukien Road has been rebuilt with a concrete foundation and surface, so that it will be able to bear the weight of the cars. Five cars will be kept in service all the time.

The following is the traffic return of the Shanghai Tramways for June, 1915, and for six months ended June 30, 1915, with figures for the corresponding periods last year:—

	June, 1915	June, 1914
Gross Receipts	$105,843.87	$109,165.24
Loss by currency depreciation	28,192.75 Mex.	26,625.05 Mex.
Effective receipts	$77,651.12	82,539.29
Percentage of loss by currency depreciation	28.59	25.99
Car Miles run	273,441	290,910
Passengers carried	4,704,774	4,840,420
	6 months ended June 30, 1915	6 months ended June 30, 1914
Gross Receipts	$633,328.21	$636,242.94
Loss by currency depreciation	168,997.67 Mex.	147,281.55 Mex.
Effective Receipts	$464,330.54	$488,961.39
Percentage of loss by currency depreciation	28.47	24.50
Car miles run	1,616,469	1,602,117
Passengers carried	27,672,480	26,423,364

Canton-Hankow Railway.—The offices of the Canton-Hankow Railway have been removed to the new buildings outside Wuchang, and the new address of the railway is Wuchang, c/o Post Office, Hankow.

SHIPPING

American Flag at Saigon.—One of the most striking features of the commerce and navigation of Saigon during 1914 is the increase in vessels flying the American flag, which made 14 visits in 1914. With two exceptions these took place in the July-December half of the year. Already, in 1915 7 American vessels have visited this port. On two occasions during the present fiscal year this port has witnessed the unusual sight of the presence of 3, and on one occasion of 4, vessels flying the American flag. These ships are all well-equipped vessels, ranging from 1,410 to 2,005 tons, and they compare not unfavorably with vessels of European nations engaging in Cochin China commerce.

The causes of this increase of American vessels are the unusual rice crops of 1913 and 1914, the quietness of insular trade in the Philippines, and the war. The U. S. transport *Warren* made one trip and the U. S. cable ship *Rizal* several trips from Manila for rice. The Philippine Steamship Co.'s vessels, *Rubi* and *Zafiro*, formerly engaged in passenger traffic between Hongkong and various Philippine ports, have been chartered to carry rice from Saigon to Hongkong and Singapore. The *Mackinaw*, a tramp steamer belonging to the Robert Dollar Co., happened to be in these waters at the outbreak of the war and has found this trade profitable because of the scarcity of available tonnage and the consequent higher freight rates. The *Rubi* and *Zafiro* carry passengers. They have a tonnage of over 1,400 each and are well equipped for the local traffic. For the first time in history an American can travel from San Francisco to Saigon in vessels, running on a fairly regular schedule, under the American flag.

Pacific Mail Cuts Honolulu.—A Honolulu message to the *Osaka Asahi* states that the Pacific Mail Steamship Co. has announced the discontinuation of call of its steamers at Honolulu after October and the operation of a direct steamer service between San Francisco and Oriental ports. The proposed abolition means a telling blow to the port of Honolulu.

From the aforegoing telegram it may be seen that the P. M. S. S. Co., which was generally anticipated to be dissolved with the operation of the U. S. Seaman's Act from next November, as reported previously in these columns, will continue maintaining its trans-Pacific service. The Company's representatives approached the Washington Government, according to wire advices, for the withdrawal of the Act and, in consequence, the Government authorities have been prevailed upon to postpone the operation of the Act indefinitely.

Minnesota's Record Cargo.—When the Northern Pacific liner Minnesota steamed out of Yokohama on her last trip, she carried the largest cargo ever shipped in one bottom on either the Atlantic Ocean or the Pacific, according to the general agent for the Minnesota in Yokohama. The total of the cargo is estimated at 30,000 tons.

Some of the items of the cargo were of themselves almost records. A shipment of Formosan tea transhipped at Kobe, amounting to 37,425 chests; a consignment of Manchurian maize, also transhipped at Kobe, of 43,430 bags; a consignment of 38,496 bales of hemp from Manila for Chicago, and 2,730 bags of peanuts. The liner also carried 1,500,000 yen in gold.

This cargo exceeded the liner's normal capacity by some 2,000 tons. This was possible because no steerage or third class passengers were carried and some of the second class space was used for cargo. Teak timber, bundles of rattan and a consignment of 800 cane chairs for the Glacier Park Hotel, Glacier National Park, Montana, were stowed on deck. The Minnesota will also carry a large cargo when she sails from Seattle in the last part of July for Vladivostok. She will discharge 20,000 tons of miscellaneous cargo at Vladivostok alone.

Japanese Yards Active.—The shipbuilding industry in Japan, says the *Nagasaki Press*, is said to be in a very flourishing condition just now. Not only are the Mitsu Bishi and Kawasaki Dockyards fully occupied with orders but the smaller yards are sharing the prosperity. The Hokkaido Tanko

Kisen Kaisha has ordered a 3,300 ton collier from the Uraga Dockyard, but the vessel will not be completed before October, 1916, owing to pressure of work. At the Osaka Iron Works one 4,000-ton, one 2,500-ton, and two 300-ton freight steamers are being built for small owners. Instead of buying second-hand vessels from abroad the latter are beginning to order new ships.

Yokohama Harbor Busy.—According to the records of the Yokohama Municipal authorities, the number of steamships entering the Yokohama harbor during last year was 4,026 with a total tonnage of 4,252,438, while the number of vessels leaving the port during the same period was 4,116 with a total tonnage of 4,405,029. During the same period, the number of sailing vessels entering was 65,438 with a total tonnage of 252,939. The number of sailing vessels leaving the port was 14,820 with a total tonnage of 140,620.

In comparing the figures with the previous year, the number entering is an increase of 3,073 vessels, but there was a decrease in tonnage of 1,180,707. The number of departing vessels decreased 1,217 and 1,454,725 in tonnage. This was due to the inactivity of coasting trade.

During the week which ended June 26, twenty-four steamers with an aggregate tonnage of 67,775 tons net, entered the port while 25 steamers with a total tonnage of 76,690 tons sailed from the port. Of the above 24 steamers which arrived at Yokohama 19 were Japanese, 3 British, 1 Russian and 1 American.

Fleet Guards Tsingtao.—The Japanese Government has decided to abolish the office of the Naval Port at Tsingtao at the end of this month. A fleet will be left on guard at the port. Captain Hirose will be appointed commander of the fleet. The Japanese warship Ujina will leave shortly to assume the duty of guard in other waters.

N. Y. K. Plans Expansion.—It is reported that the Nippon Yusen Kaisha is shortly to increase its capital. The company's term of existence is to expire at the end of September, and the Board of Directors held a special conference last week to discuss various problems referring to the continuation of the company and the proposed increase of capital, and it was decided that the following draft was to be presented for discussion in an extra general meeting of the shareholders: That the by-laws of the company may be revised so that the company may continue its existence for another 30 years. That the company's capital may be increased from the present amount 22,000,000 yen to 44,000,000 yen and that the increase be divided into 440,000 shares, the new shares to be assigned to the existing shareholders, each new share to each old share, and that the payment of share money at the rate of 12.50 yen per share shall be made out of 8,200,000 yen which shall be distributed among the existing shareholders. This being reduced, there will be a surplus of 2,750,000 yen, and this may be distributed among the present shareholders at the rate of 6.25 yen per share.

The funds now held by the company shall be distributed among the shareholders, special bonus to the directors, auditors and officers, and men, and company's agents as special allowances.

Japan's Naval Plans.—The public was advised at the time when the Army Increment Bills were passed by the Houses of the Imperial Diet by some financial writers that it would be asked to sanction the Naval Increment proposals very soon and that the race of increment undertaken by the Army and the Navy would soon necessitate the Government to plan an increment in various taxes, says the Japan Daily Mail. Though not many days have been passed yet since that warning was given, already reports are rife in the political circles regarding the possible introduction of the Naval Increment Bills in the next session of the Imperial Diet. The whole scheme of increment is kept secret by the Naval authorities but part of it has already leaked out. The part known consists of the construction of 4 superdreadnoughts, 2 scout boats, 24 destroyers, 8 submarines, and 1 parent ship for planes, the credit for which is estimated at 190,000,000 *yen* spread over a period of 4 years from 1916.

This part of the whole scheme is nearly half the plan reported before as the entire scheme of the Naval Increment approved by the Defence Conference held last year. The alleged original plan was to build 8 battleships, 8 battle cruisers, 6 scout ships, 64 destroyers, 24 submarines, and a few suppliers or transports during a term of 8 years. It was modified further last year. According to the modified plan for 8 years from the present 4 battleships, 2 battle-cruisers, 6 scout ships, 30 destroyers, and 12 submarines are to be built. Therefore, the Naval authorities say, the plan now to be realized will not affect the financial programme in any degree. The military authorities on the other hand are credited with a statement that it would be better to postpone it till after the present war, as the war will alter the naval tactics to no small degree, though they are not opposed to the plan as it was already passed by the Defence Conference. It is further learned that the plan was already passed by the conference of the Chief Staff Officers just closed and is now in the hand of Admiral Yashiro, the Minister of Navy. Though the new scheme is not disapproved by any concerned, it is believed to be inevitable that sharp discussions will arise as to the advisability of hastily realizing the plan till it is referred to the Imperial Diet.

The Japan Chronicle says:—Of the Naval Estimates for the present fiscal year, which were approved by the Diet in the last session, Yen 23,333,318 is for new construction. This sum includes Yen 11,500,000 from the Treasury surplus, so that the new demand for increased expenditure is Y.11,833,318. This estimate forms a portion of the total estimate of Y.104,083,926 demanded by the Yamamoto Cabinet for expenditure on naval replenishment, and approved by the Diet. The estimate will defray in part the cost of three battleships of 30,000 tons each—one named the Yamashiro to be built at Yokosuka, another, the Ise, to be built at the Kawasaki Yard, and the third, the Hyuga, built at the Mitsu Bishi Yard (the total cost of the three is estimated at yen 86,557,010); and of four first-class destroyers of 1,000 tons each, two of which are being built in England, named the Urakaze and Kawakaze, of two submarines of 700 tons each, and four second-class destroyers. In 1913 Yen 6,000,000 was paid and in 1914 Yen 6,520,000 towards the construction of the three battleships. Owing to the failure of the Budget for the present year, work on the Ise and Hyuga was suspended, but at the discretion of the Kawasaki Yard the keel of the Ise was laid on May 5th, and the Mitsu Bishi Yard laid the keel of the Hyuga on May 11th. Work on the Yamashiro alone was continued out of the Government's surplus fund. Upon the publication of the Budget for the present year just approved by the Diet, the construction of the three battleships will be pushed on. Eight destroyers and two submarines are to be completed in two years (1915 and 1916). The amount of the cost of construction of ships mentioned each year from this year is as follows:—

1915-6	Y 23,333,318
1916-7	36,048,489
1917-8	25,815,641
1918-9	6,360,471
Total	Y.91,557,919

P. & O. Liner Sold.—A report from Singapore says the P. and O. steamer Oriental has been sold to the Ho Hong Steamship company for £32,000 pending the survey of the steamer at Bombay. The Oriental will be put on the China run by its purchasers.

Japanese Prize Sold.—The former Hamburg American liner Suimow, which was seized by the Naval authorities in the Inland Sea, was knocked down to the Nishin Kisen Kaisha at Saseho in an auction sale. The ship will be employed by the company on the Yangtze River.

Suez Traffic Decreases.—The receipts of the Suez Canal Co. for the first four months of 1915 amounted to $5,467,160, as compared with $8,719,740 for the corresponding period in 1914. During the first four months of 1915 only 1,106 ships passed through the canal, as against 1,822 in 1914.

Panama Now Profitable.—The Panama Canal is now operating at a profit. In March the tolls amounted to $560,785. Operation and maintenance cost $423,275. The surplus was $137,510. Since July 1, 1914, the total revenue is $2,895,300; charges, $3,018,889; deficit, $123,588. Up to March 1 the earnings of tolls fell short of meeting the expenses of operation and maintenance by $261,098.09. From the beginning of the present fiscal year, on July 1, 1914, to March 1, 1915, a period of eight months, the total expenditure attributed to operation and maintenance was $2,595,613.33. The total earning of tolls in the period were $2,333,515.24. Operation and maintenance include all the diversified expenditures necessary for keeping the canal open and in order, and the work of hauling vessels through: and to such expenditures have been added a prorated part of the expenses of the civil government, of the sanitary work, and of general administration. These three latter items have amounted to $574,570.82 during the period. Over a third of the total overhead expense of the Panama Canal is assigned to operation and maintenance.

Bangkok-Singapore Service.—The Straits Steamship Company's fine new liner Kampar has made her maiden voyage to the Monam. The Company has not merely stepped into a run left vacant, by the absence of the N.D.L. vessels, but is vastly improving the service by speedy passages and studied comfort for its patrons. The advent of the Straits liners on this run is proving a boon to all who have dealings with Siam.—Malaya Tribune.

Bonus for Employees.—All the European employees of the British India S.N. Co. on all steamers afloat, whether in Government service as transports or carrying out the usual runs, have been granted a war bonus of 15 per cent. on their salaries from January 1, 1915, which is to continue as long as the war lasts.

BRIDGES AND BUILDINGS

Manila's New Bridge.—The Governor General has approved the city of Manila public works allotments for the fiscal year of 1915. Among the items is P.300,000 to meet the initial cost of the new bridge to be constructed across the Pasig at calle Rosario. The estimated cost of this structure is P.1,250,000.

Straits Settlements School.—One of the most modern buildings of recent structure in Singapore city of public nature, is the new Pearl Hill School, a two-story brick structure with the first floor of concrete. The second floor consists of hardwood and Siam teak.

The staircases are of reinforced concrete as is abalcony over looking the main hall and gallery, which is capable of accommodating 200 children. The main assembly hall is 84 feet long. The ground floor is devoted to offices, teachers' rooms, etc. There are 16 classrooms, 6 rooms, 30 by 20 feet, on each floor, which will accommodate 600 children.

The outbuildings consist of luncheon rooms and a play shed. The building is 190 by 78 feet, and was put up at a cost of $40,000 (gold).

Kuala Lumpur's Y. M. C. A.—The construction of the new building for the Kuala Lumpur branch of the Y. M. C. A. has been commenced on the association's own ground in Brickfields Road. The new building, to cost about $11,350 gold, is to be a simple one-story building designed with a view to the addition of a second story for secretary's quarters and living rooms for young men. The building will have a front of about 100 feet, a veranda, 12 feet 6 inches, running the whole length; a hall, 58 feet 6 inches by 27 feet 9 inches; a reading room 24 feet by 27 feet 9 inches; a billiard room 24 feet by 32 feet; and a gymnasium 34 feet by 33 feet. The building was designed by local architects.

New Mosque in Perak.—An interesting new structure is the mosque being erected at Kuala Kangsar, in Perak, Federated Malay States. It is of reinforced concrete with iron beams, columns, and slabs and cast concrete walls. Even the minarets and domes are built in this way. Over the main building, and 40 feet above ground, a large reinforced dome, 60 feet in diameter, is supported on 16 reinforced concrete columns, and above this there is another dome 80 feet high. There are 4 minarets 8 feet in diameter and 125 feet high, 12 smaller towers, about 70 feet high, and several domes over porches, bathing tank, etc.

Throughout the interior marble facing is used on the walls, columns, and floor, while an elaborate design of gypsum ceilings and other Oriental decorations is carried out throughout the entire building. The total cost of the work is said to be S. S. $300,000 ($170,000 U. S. currency). All reinforcements for the concrete work, as well as the structural steel and metal lathing on which the plastering is placed, is of American manufacture.

Construction Work in Klang.—Further evidence of progress near Port Swettenham, Federated Malay States, is certain construction work taking place at Klang, a new station.

There is under construction now a row of 25 shop houses, each 20 by 70 feet, two stories high. The building rests on steel and concrete columns, with steel beams and trusses in the framework, and is fireproof with the exception of wood floors. The total cost is $71,000 gold.

There is under construction a bank building about 120 by 80 feet, two stories high of reinforced concrete, which has burglar-proof strong rooms and record rooms. The estimated cost is $68,000 gold. There is also under erection a new power station at Seremban, which is to be 100 by 40 feet, of brick construction at a total cost of $17,000 gold.

P.50,000 Dormitory for Manila.—At the Methodist conference it was decided to build a new dormitory for girls at Manila to cost P.50,000.

Manila's new Laboratory.—The proposed laboratory of the Philippine University, which is to supply the needs of both the chemistry and zoology departments for years to come, is now assured, the governor general having approved the release of the P.30,000 voted during the last session of the legislature for the structure.

Philippine Market Construction.—The government of the Philippine Islands is encouraging the construction of public markets in the municipalities by the loan of public funds. During the coming fiscal year $350,000 gold will be loaned from various trust funds for this purpose, the total expenditure being planned at about $400,000 gold, the territorial government in each case advancing only a certain portion of the cost of the structure, the municipality advancing the balance. Loans have already been arranged for and work started on markets in Lemery, Batangas Province, $6,000; Santo Tomas, Batangas, $5,000; Bacarra, Ilocos Norte, $6,000; Bauang, La Union, $6,000; Hilongos, Leyte, $6,000; Ormoc, Leyte, $13,500; Penaranda, Nueva Ecija, $4,750; Bacon, Samar, $5,700. Additional allotments are being arranged. The loan of public funds from various trust funds for public works in the islands this year will aggregate about $1,000,000 gold.

China's State Department.—The new building for the State Department has been completed, but after a personal inspection of the building the President decided it was not spacious enough for such an important government organ as the State Department. There are over one hundred rooms in the new building, which is of one story. Originally it was planned that the building should be of two stories, but any one on the second story of the new building could overlook the Presidental Mansion. To respect the President's privacy, the authorities had to alter their plan. The cost of the building is over $250,000.

Japan's Banquet Hall.—Imperial sanction has been given for the construction of a banquet hall in Kyoto for the Coronation feasts of the Emperor in November. The floor of the hall will contain 252 square feet, with a music stand in the centre. The construction work is to be completed in September.

Japan Plans Fine Arts Gallery.—Various plans have been suggested for the commemoration by Tokyo of the Emperor's accession to the throne, which is to be officially celebrated in Kyoto this fall. One is the establishment of a big fine arts gallery. This plan has been suggested by artists and is supported by many prominent business men. It has been brought to the notice of the authorities of the Department of Education, although it is still uncertain whether the educational authorities can approve it because of financial reasons. According to some of those interested the establishment of such a gallery would cost about one million yen.

Japanese Post Office for Antung.—The supplementary estimate for the construction of new premises for the Japanese Post Office, Antung, destroyed by fire last winter, was included in the list approved by Parliament which appropriated Y87,222. Work will be commenced shortly.

Philippine Bridge Bids.—Bids for the construction of the Malaywanak and Kaytituga bridges on the Tuy-Nasugbu road in Batangas have been received by the director of public works as follows:

The Atlantic, Gulf and Pacific Company offered to do the work on the first structure for P.27,400, and on the second for P.20,000, making a uniform charge of P.30 per cubic meter for extra concrete, and P.12 per cubic meter for extra adobe stone masonry. Time limit 300 days.

M. E. Martin bid P.25,000 on the first bridge, and P.22,000 on the second, extra concrete P.30 per cubic meter and extra masonry, P.18 per cubic meter. Time limit 240 days.

FINANCE

Bank of China's Profit.—The net profit of the Bank of China for the first half year, this year, is about $800,000, according to a report in the Sinwanpao.

Canton Revenue Grows.—The revenue of the Canton Customs for the second quarter of 1915 amounts to 9,378,000 dollars. That means one million dollars more than in the first quarter.

China's Customs Revenue.—The revenue of the Maritime Customs for the month of June is Taels 2,860,000, while that of the native Customs is Taels 380,000.

Redeem Tsinanfu Notes.—The Bank of China has commenced to redeem the over issued banknotes of the native banks in Tsinanfu.

Japan and Mongolia.—The Japanese Department of Finance has appointed a commission to investigate the establishment of a bank to invest funds in land in the development of Manchuria and Mongolia and to give loans on securities other than land.

Mukden Government asks Loan.—The Mukden Government, according to Japanese reports, is asking the Central Government for permission to borrow S. Y300,000 monthly from the Bank of China between June and October to meet the financial deficit created after disbursing S. Y600,000 previously borrowed from the said Bank.

Hongkong Finances.—The financial statement for March, 1915, published in the *Hongkong Gazette* is as follows:—

Balance of assets and liabilities on 28th February, 1915	$3,132,381.83
Revenue from 1st to 31st March, 1915	827,709.99
	3,960,091.82
Expenditure from 1st to 31st March, 1915	914,625.15
Balance	$3,045,466.67

Eastern Provinces Deficit.—The estimates for the current year, as submitted by China's three Eastern Provinces, are:—

	Revenue S.Y.	Expenditure S.Y.	Deficit S.Y.
Fengtien	11,340,000	13,240,000	1,900,000
Kirin	7,760,000	10,460,000	2,700,000
Heilungkiang	6,280,000	6,970,000	670,000
Total deficit			S.Y. 5,270,000

China Needs American Bank.—In a recent issue of the Peking Gazette there appeared an article, first printed in the Daily Telegraph, on China's future and British interests, in

which is set forth the necessity of banks and banking co-operation in China as the most effective means of advancing British interests. The conclusions are equally applicable to the United States, says Commercial Attaché Julean H. Arnold, in a report to the Department of Commerce.

Until we have in China a solid, well-capitalized American bank, there is little hope for a substantial increase in American trade in this country. There are industrial plants to be installed, China offering the best field in the world for cotton manufacturing. There are tens of thousands of miles of railroads to be built, there are tramways, telephones, electric plants, glass-manufacturing establishments, oil mills, flour mills, etc., to be erected, there are rich mineral deposits to be exported. But these all require the assistance of foreign financing in order that they may be profitably handled. There is not the necessary ready money in China for these undertakings. The various foreign banking interests in China have been financing just such works as these mentioned, and the trade of the countries who offered the financial assistance prospered proportionately.

Owing to the present disturbed conditions in international affairs an opportunity now presents itself in a very attractive way for the entrance of American banks in China, but the work must be engineered by men on the spot, men familiar with conditions in that country. Such men it is possible to obtain, and it remains for American banking interests to give this field their intelligent attention. Never in the history of China have the people of this country been more friendly disposed toward America and things American than at present; hence, now is the time for American manufacturers working through American banks to come into this field and establish themselves in such a manner that, like certain large American companies that have their own organizations strongly entrenched in this country, they may profit by the opportunities that this market has to offer to well-capitalized concerns willing to give to China the intelligent consideration that marks the business of such companies at home.

Japan s Postal Savings Deposits.—The amount of postal savings in Japan at the end of June was 204,910,000 yen, showing a net increase of about 3,000,000 yen when compared with May, the rate of increase being the highest on record in recent years. The cause may be the absence of the demand for money for industrial investment and the lowering of bank rate, which has induced the public to prefer the postal savings.

Banking in Japan.—According to investigations there were 2,166 banking houses in Japan at the end of March last and their combined capital was 942,549,265 *yen*. Semi-banking houses numbered 10, their capital coming to 94,500,000 *yen*.

Japan's New Army Budget.—All armament extension programmes planned by the military authorities for the fiscal year 1916/17 are embodied in the Budget estimates to be referred to the Finance Department by the War Office very shortly. In those plans new works are to be undertaken. Among others 1,863,181 *yen* will be appropriated additionally for construction of barracks, purchases of horses, and accommodation of medical corps for the new divisions in Chosen. In the ordinary expenditure 1,500,546 *yen* more will be appropriated for the same end. Big sums will be appropriated for the creation of auxiliary corps and investigation of aeronautics together with increasing appropriations for the Flying Corps. A wireless corps will also be inaugurated and the automobile corps extended with a large increase in cars.

Plans China-Japan Bank—Five different plans have been put forth for the proposed Sino-Japanese bank.

The first of the scheme is that the Governments of both countries hold its shares in equal number. The bank is to issue notes and have other privileges. The capital now contemplated is Yen 50,000,000, and the shares to be held by the two Governments may be transferred to the people.

The second plan is to form a permanent financial syndicate among the prominent banks in Japan, to carry out investigations for investments in China, and to facilitate such investments. The shares of the syndicate are to be held mainly by the banks.

The third plan is to organize a special corporation to investigate the conditions in China financially or economically, and should the investigation confirm the advisability of investment for such and such purposes, then a financial syndicate would be promoted.

The fourth plan is to establish a central bank in Manchuria. The plan originated with the South Manchuria Railway Company, but the company dropped the scheme as it was argued that the S. M. R. Co. should refrain from banking business.

The fifth plan is to organize a financial syndicate for industrial investment in China, but this plan is started by some Tokio bankers not so much because of their enterprise for China, as because of their desire to avert the financial relaxation prevailing here, by creating a new demand for the idle money.

The view on the anti-Japanese boycott in China that it is of a temporary nature but that the effect of the new tendency in Chinese industrial development on trade will be more permanent and serious, as telegraphed by a Shanghai correspondent, has attracted attention in Tokio and it is felt that the Japanese business men who are interested in enterprises in China should be more wide awake to meet the new circumstances. Therefore the proposed Sino-Japanese Financial Bank should make the interests of China and the Chinese people the first consideration to bring about more intimate relations between the two nations.

Japan's Revenue Decreasing.—Mr. Hamaguchi, ex-Vice-Minister of Finance, has stated in a press interview that the revenue for the current fiscal year would fall short of the sum estimated because of the decrease of import duty and smaller income from Government monopoly and *sake* tax. The Government would have no alternative, he said, but to supplement the shortage out of the surplus fund remaining from the previous year's finances. The Government already decided to economize in every item of expenditures, and postpone extra works. This has caused some to think that the Government will increase taxes, but Mr. Hamaguchi has emphatically denied that such is the case.

Referring to the recent depreciation of Japanese Government bonds in London market, he has expressed his view that the cause is simply due to the issue of the British war bonds at such a high rate as 4½ per cent. Some fear that the Japanese domestic bonds exported to London market might be re-imported because of the war, but so far none has been sent back. London cables to the Bank of Japan dated July 8, state that Japanese bonds again fell considerably. The first 4 per cent bonds fell by 2½ points to 63½, the second by 1 point. Others fell either by ¼ or more points. Compared with last month, the figures and the difference in some of the bonds are as follows:

	June 9	July 9	Fall
First Fours	71½	63½	8
Second Fours	74½	71	2½
Third Fours..................	70½	68	2½
First Fours and a half ...	90¼	83¾	6½
Second Fours and a half.	88½	83¼	5
First Fives	91½	91	½

POPULATION AND COLONIZATION

Japanese in the Philippines—A correspondent of the *Tokyo Asahi*, who is now visiting the Philippines, sends to his paper a correspondence which purports to show the state of things in the islands in a clear light and incidentally forecasts a probable large increase in the Japanese population for the near future. There are some among the Japanese, writes the correspondent, who fear that the relations between the Philippines and Japan are not very friendly because of the anti-Japanese feeling shown by some Americans in San Francisco, but the facts are quite the contrary.

In the first place, the heat in the islands is too much for white labour. The Chinese are the best labourers for the islands; but the real trouble is that there exists a law prohibiting the entrance of the Chinese. It is true that there are 60,000 Chinese, but they are already established on their own farms, so that they cannot be employed for opening up new lands. The natives are too lazy for work. Under the circumstances, the Japanese are the only possible labour which can be employed for the development of the Philippines. Now the American policy in the islands is to make them independent in economy as soon as possible. America wants, it is clear to anybody, to get rid of the help she has to give to the Philippines. She is trying, therefore, to develop the natural resources of the islands in order to establish an economic independence for the latter. There is no doubt that there is a very good market for Japanese labour here, but contract labour is not allowed, so that those desiring to come must be independent labourers.

According to the statement of the correspondent, there are between 4,000 and 5,000 Japanese in the Philippine islands. (According to other reports there are more than 4,000 in Mindanao alone.) About 1,700 of them are in Manila; 700 are carpenters, 300 fishermen, and others are in various employments. The fishermen own 30 boats, and do fishing by means of nets. Their earnings are 50 *yen* per month. The carpenters are doing very well, and earn twice as much as the fishermen. As for the merchants, there are the Mitsui Company, Mr. Chubei Ito, of Osaka, and some others. The Mitsui Company deals principally in coal, while Mr. Ito exports hemp. The amount of hemp exported to Japan reaches 6,000,000 *yen* per year. The lands owned by the Japanese for the cultivation of hemp extend over an area of 1,224 acres. The land laws of the islands provide that a foreigners' company which has more than three American or Filipino incorporators can own land. Timbered lands can be had almost for nothing: For instance. The Ohta Development Company established by a Japanese, Mr. K. S. Ohta, has acquired lands by virtue of these laws. When the company was first started in 1906, it had a capital of 100,000 *yen*. At present its capital amounts to 250,000 *yen* and practically controls the market of hemp of quality suitable for manufacture of braids. There is also pearl shell fishing, in which the Japanese are engaged and are said to be "skinning" the best shellbanks to the great detriment of the natives. They are given 30 *yen* a month with board, but the profits of the boat owner are restricted only by the amount of shell he can find.

Japanese Abroad.—The Foreign Office has published tables showing the number and professions of the Japanese residing in foreign countries. According to them, the Japanese residing in foreign countries at the end of last June numbered 359,716, of whom 179,393 were females. As compared with the corresponding period of the preceding year, an increase of 38,454 is shown. When they are classified as to the place of their residence, Asia comes first with 134,498, of whom 73,247 are males;

next comes the American Continent with 117,122, of whom 92,264 are males; third comes Oceania with 106,865, of whom 78,051 are males and the remaining 32,614 are females; last comes Europe with 1,230.

Classified in detail, they are located as follows:—

	Males.	Females.	Total.
ASIA.			
Russian Asia	2,260	2,303	4,563
China	67,363	54,593	121,959
Hongkong	769	786	1,555
Saigon	31	130	161
Siam	157	61	218
Singapore	2,298	2,868	5,166
British India	369	510	879
OCEANIA.			
Hawaii	57,245	33,563	90,808
Sydney	7,583	227	7,810
Manila	4,431	867	5,298
Batavia	1,592	1,357	2,949
AMERICA			
U.S.	67,041	12,601	79,642
Alaska	892	61	953
Mexico	2,572	165	2,381
Canada	9,156	2,803	11,959
Peru	5,163	319	5,482
Chili	291	14	305
Brazil	9,581	5,881	15,462
Argentine	569	114	683

The *Anto Shimbun* published in Antung reports that the latest official investigation sets the total number of Japanese residents in China at 118,447, including 65,545 males and 52,902 females. The following table shows particulars of cities having more than 1,000 Japanese residents:—

Kwantung Leased Territory, 48,909; Mukden, 16,999; Newchwang, 6,514; Tsitsihar, 1,562; Shanghai, 11,138; Amoy, 1,036; Antung, 7,094; Liaoyang, 3,936; Tiehling, 2,008; Changchun, 6,203; Harbin, 2,211; Tientsin, 4,162; Hankow, 1,626.

Chinese in Japan.—According to the latest investigations of the Japanese Home Department, the Chinese in the country number 11,840, of which 8,767 are men, and 3,073 are women, and occupy 3,680 households. Out of the fifty-one Prefectures and *Do*, thirty are populated more or less by Chinese.

Chinese in Shanghai.—According to the latest investigation as to the number of houses and people under the jurisdiction of the police administration of Shanghai and Woosung, the total number of houses exceed 115,860 and the population is over 585,700. This total does not include the Foreign Settlement.

Investigating South Seas.—Prof. Dr. Tsunetaro Goto, of the College of Science in the Tokyo Imperial University, and Prof. Sadaji Terada, of the Otaru Higher Commercial School, have been ordered to the South Sea Islands, for scientific surveys in these islands. These two scholars will be the last to be despatched to the South Sea Islands. Upon their return home the results of the surveys carried out by the expeditionary parties, who have been despatched to these islands from time to time since the Japanese occupation last year, will be printed and published for the public benefit.

Colonizing Tsingtao.—Baron Funakoshi, who represents the Foreign Office in the Civil Administration Office at Tsingtao, says the *Japan Times*, has just returned to Tokyo in response to a telegraphic summons. Interviewed by a press representative, he gave the following as to the existing conditions of the Japanese settlement there:—

In order to inherit successfully what Germany has done in Tsingtao, during the past seventeen years and the money she has spent amounting to hundreds of millions of *yen*, there is a special need for serious-minded and diligent settlers who would carry on steady and methodical work, instead of spasmodic, adventurous undertakings. It is to be deeply regretted, therefore, that there is at present only one hotel decently conducted and fit for the use of foreigners, the rest being suspicious inns which no respectable people can patronize. Besides those engaged in the hotel business, many of the ten thousand Japanese in the place are coolies and barbers.

Because such tramp elements predominated among the Japanese who went to Tsingtao after the fall of the fortress, many Chinese inhabitants, who had fled from war, have not come back, and those who have remained on the spot are afraid of the adventurous rowdies.

For the future development of the port and the harmonious co-operation of Chinese and Japanese, nothing is more desirable and urgent than the sending of inspection bodies of capitalists and businessmen. Without the interest and investment of such people, Japan can never carry forward what Germany initiated with her characteristic thoroughness. The afforestation of denuded mountains, and the opening of a fine bathing beach are among the examples set by the Kaiser's people. The Shantung Railway has at last been restored to its former usefulness, and all the sunken ships will be refloated before the end of this month. The communication by land and sea thus reinstated, a new period of positive reconstruction must begin at Tsingtao as a Japanese colony.

Look into Eastern Mongolia.—The Society for the Study of Far Eastern Affairs belonging to the Japanese Constitutional Party has decided to make investigations into the proposed construction of three railways and the proposed establishment of a financing organization, hospitals, and schools in Eastern Mongolia.

A party of Parliamentary members, representing three Government parties, will start about July 20 on a trip to Manchuria and Mongolia through Korea. Their object is to inspect the conditions in parts of China where Japan has acquired new privileges as a result of the recent negotiations with China.

As a result of official investigation into the prospects of various enterprises in Manchuria and Mongolia the following report has been published by the Japanese Government:—

Agriculture.—The price of uncultivated land is generally cheap. The price of arable land is from 100 yen to 15 yen per *tenchi* or about 6 Japanese tan, according to the locality. The cost for the cultivation of land is 5 to 6 yen per *tenchi*, and the cultivation is very easy. The opening of 10 *tenchi* of uncultivated arable land requires only two days' work for two laborers and a pair of cattle. The soil is best fitted for the growing of millet, beans and hemp, and the growing of rice is also promising. The pasturage is very easy in every part of the region.

Industry.—The manufacture of fur, butter, tinned provisions, soap, glass, kaoliang paper, linseed oil is expected to flourish. Should the mining business make further progress, the manufacture of industrial drugs would become a very profitable business.

Mining.—As to mining nothing definite can now be asserted and the Department of Agriculture and Commerce, the Government of the Leased Territory at Kwantung, and the South Manchuria Railway Company are pushing on the investigations. But at present the production of soda and salt seems to be the main thing. It appears that the land abounds in the two products above-mentioned, expecially soda being said to reach over 1,000,000 *kamme* in its annual production. Besides, the dust gold, gold, silver and other minerals are expected to be rich, and the exploration of these minerals cannot fail to be a very promising enterprise in future.

Commerce and Money Market.—Foreign trade or inter provincial trade is prosperous along the Russian frontier or the borders of China proper. But in the inner part of Mongolia, the country is but thinly populated. Therefore, there is no fixed manner of commerce among them. It entirely depends upon the efforts of Japanese emigrants to settle there permanently and develop commerce. As to the organ for money circulation, a Sino-Japanese bank is shortly to be established to work in Mongolia, but it is hoped that as many Japanese capitalists as possible may invest in enterprises there for the development of the land in every respect.

Confiscate Tsingtao Properties.—The Tsingtao Garrison, it may be remembered, says the *Manchuria Daily News*, issued notices to the effect that all neglected foreign properties there, the claim-holders of which failed to come forward to establish their claims by May 31 would be confiscated. These warnings have been disregarded by the parties concerned in many cases, and such pieces of properties have been decided to be confiscated without exception. An inventory is under preparation. Some of these properties will be used by the Garrison, but others will be either sold by auction or sent to Japan in the cases of portable objects.

NEW ENTERPRISES

Osaka's South Seas Company.—Business men in Osaka have established a South Sea Trading Association, consisting of twelve guilds. Its object is to encourage trade with the South Sea Islands on a large scale. The Association will be strongly backed by the Formosa Bank. Leading business men in Tokyo have also proposed to establish a similar association, but owing to a disagreement among the guilds, the plan has not been realised.

Philippine Potash.—Dr. J. D. Long, director of the bureau of health, in a letter recently sent to the secretary of the interior, states that "an analysis of seaweed collected on the bay shore in Tondo shows that there is about 15 per cent of potash present in the ash." The director also points out that all American countries are at present desirous of securing a supply of potash to replace that usually obtained from Germany, and that the Philippines may be in a position to fill the demand. There are at present no commercially exploited potash beds in the United States, and the present find in the Philippines may prove of great commercial importance. In the meantime the director of health has suggested that the bureau of agriculture make use of the potash residue from the seaweed ash as fertilizer at least, and there is little doubt but that the government will conduct a series of experiments to determine the commercial possibilities of the seaweed mentioned by Dr. Long in his letter.

Potash is used in the manufacture of fertilizers, potash alum, electro-chemicals, gunpowder, and many general chemicals. Practically the whole world supply comes from Germany, which exported 8,311,672 tons during 1910. Since that time many new mines have been opened in Germany, but the present war has prevented its export. In 1911, the United States importations of potash salts amounted to 336,689 tons, valued at $16,269,408. The commercial control of the sale of potash salts was until recently in the hands of a German potash syndicate, in which all owners of potash mines in the German empire were compelled by law to hold membership. After the dissolution of that syndicate, the German government imposed an export tax which led to protracted negotiations with United States manufacturers who had placed contracts with individual mines in Germany. This was finally adjusted by the cancellation of the contracts.

ALPHABETICAL LIST OF ADVERTISERS

Albany Grease ... 55
Allen & Co. Ltd., Edgar ... 62
American Locomotive Co. ... 13
American Rolling Mill Co. ... 21
American Tool Works Co. ... 5
Andersen, Meyer & Co. ... 2
Anderson & Co., Wm. H. ... 49
Avery, Ltd., W. & T. Soho Foundry, ... 3
Avonside Engine Co. Ltd. ... 40

Babcock & Wilcox, Ltd. ... 4
Baldwin Locomotive Works. ... 17
Bank of China ... 9
Bank of Communication ... 8
Bank of the Philippine Islands ... Cover
Bohler Bros. & Co., Ltd. ... 59
British Aluminium Co., Ltd. ... 61
Brought Copper Co., Ltd. ... 53
Burrell & Co., Ltd ... 60

Chinese Government Railways of China ... 18,22,23,26,27,30
Chosen Railway ... 31
Cia. Trasatlantica. ... 59
Commercial Car Co. ... 61
Commercial Press, Ltd. ... 43
Craig & Co. A. F ... 32

Dentsch-Asiatische Bank ... 7
Dollar Co., Robert ... 19
Drysdale & Co., Ltd. ... 44

Escher Wyoo & Co. ... 3
Evans, Joseph, & Sons ... 2

Fairbanks Morse & Co. ... 57
Far Eastern Review, The ... 32, 44
Fiat, San Giorgio, Ltd ... 53
Firestone Tire & Rubber Co. ... 41
Frank L. Strong Machinery Co ... 18

General Electric Co ... 35
Germinal Cigar & Cigarette Factory ... 26
Goulds Manufacturing Co. ... 31
Green Island Cement Co., Ltd. ...

Harvard Medical School ... 55
Hasler Telegraph Works ... 56
Haywood Bros. & Eckstein. ... 59
Hongkong & Shanghai Banking Corporation. ... 6
Hongkong & Whampoa Dock Co., Ltd. ... 10
Hurst, Nelson & Co. Ltd. ... 31

Ice Trade Journal Co ... 43
International Banking Corp ... 6

Jardine, Matheson & Co. ... 46
Jones & Lamson Machinery Company. ... 40
Johnson-Pickett Rope Co. ... 42

Kailan Mining Administration ... Cover
Kellogg Switchboard & Supply Co. ... 21

Lehigh Car, Wheel & Axle Works ... 53
Lidgerwood Manufacturing Co. ... 12
Lima Locomotive Works. ... 14

Mather and Platt, Ltd. ... 15
McConway & Torley Co., The ... 37
Mitsu Bishi Dockyard & Eng. Works ... 10
Morse & Son, (Inc.) A. J. ... 21
Municipal Engineering and Contracting Co. ... 57
Mustard & Co., ... 55

Norton & Harrison Co. ... 62

Olsen & Co., Walter E. ... Cover
Owen Bros ... 3

Pacific Mail S. S. Co. ... 21
Pekin Syndicate, Ltd. ... 16, 47
Pienlo Railway ... 28
Priestman Brothers, Ltd. ... 12
Pyle-National Electric Headlight Co... 19

Railway Signal Co., Ltd. ... 59
Reddaway & Co., F. ... Cover
Rendrock Powder Co. ... 12
R. Hood Haggie & Son ... 61
Royles Limited ... 39
Russo-Asiatic Bank ... 7

Schuchardt & Schütte ... 43
Schmidt Superheating Co., The. ... 12
Shanghai Dock & Eng. Co., Ltd., The... 11
Shanghai Machine Co. ... 32
Shanghai-Nanking Ry. ... 28
Shewan, Tomes & Co. ... 45
Siemens China Co. ... 50
Simmons Manufacturing Co., The. ... 55
South Manchuria Railway Co. ... 24
Standard Oil Co., of New York ... 0, 36, 54, 60
Stevenson & Co., Ltd., W. F ... 44
Symington Co., T. H., ... 15

Trimont Manufacturing Co ... 43

United States Steel Products Co. ... 33, 8,42,53,55

Vulcan Iron Works. ... 55

Werf Gusts ... 58
Western Electric Co. ... 4
Westinghouse Electric & Manufacturing Co., The ... 1
White & Co. J. G. ... 57
Worthington Pump Co., Ltd. ... 5

Yokohama Specie Bank, Ltd. ... 7
Ynchausti & Co. ... 44

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Alcohol Distillers
Cia. General de Tabacos de Filipinas.
Ynchausti & Co.

Alloys
Broughton Copper Co., Ltd.

Aluminum
British Aluminium Co.

Anti-Corrosion Paint
Burrell & Co., Ltd.
Owen Brothers

Anti-Fouling Composition
Burrell & Co., Ltd.
J. Dampney & Co.

American Iron
American Rolling Mills Co.

Art Oilcloths
F. Reddaway & Co.

Asbestos Goods
Andersen, Meyer & Co.

Asphalt Block Filler
Standard Oil Co.

Ball and Tube Mills
Edgar Allen & Co.

Automatic Weighbridges
W. & T. Avery, Ltd.

Automobile Tires
Firestone Tire and Rubber Co.

Banks
Bank of China
Deutsch-Asiatische
Hongkong and Shanghai Banking Corp
International Banking Corp.
Banco Español Filipino
Russo-Asiatic Bank
Yokohama Specie Bank.

Barbed Wire
U. S. Steel Products Co.

Bearings (Railway Car)
T. H. Symington Co.

Bedsteads
Simmon Mfg. Co.

Belting
Geo. Angus & Co., Ltd.
F. Reddaway & Co., "Camel Hair," etc.
Shanghai Machine Co.

Blasting Powder
Curtis's & Harvey Ltd.
Rendrock Powder Co.

Bleaching Plants
Mather & Platt, Ltd.

Blowers
Frank L. Strong Machinery Co.

Boilermakers
Babcock & Wilcox, Ltd.
A. F. Craig & Co.
Taikoo Dock & Engineering Co.
Shanghai Dock & Engineering Co.

Boiler Tubes
Royles Ltd.

Boiler Fittings
Babcock and Wilcox
Shewan, Tomes and Co.

Brass and Bronze Tubing
Broughton Copper Co., Ltd.

Bridge-Builders
White & Co., Inc., J. G.
Shanghai Dock & Engineering Co., Ltd.

Bridge Materials
United States Steel Products Co.

Building Materials
Haywood Bros. & Eckstein Ltd.
Malthoid Paraffine Paint Co.
W. H. Anderson & Co.

Cables, Telephone, Telegraph Supplies
Bellis & Morcom. Ltd.
General Electric Co.
W. T. Henley's Telegraph Works Co., Ltd.
Melchers & Co.
Westinghouse E. & M. Co.

Cables
Andersen, Meyer & Co.
Shewan, Tomes & Co.

Cableways
Lidgerwood Mfg. Co.

Calorifiers
Royles, Ltd.

Carriage Door Locks
Jos. Kaye and Sons Ltd.

Cars and Trucks (Railway)
Hurst, Nelson and Co.
Shewan, Tomes and Co.

Car Wheels and Axles
Hurst, Nelson & Co., Ltd.
United States Steel Products Co.

Cattle Guards
Fairbanks, Morse & Co.

Cement
Anderson & Co., W. H.
Green Island Cement Co., Ltd.

Cement Machinery
Austin Drainage Excavator Co.

Centrifugal Pumps
Drysdale & Co.
Worthington Pump Co.

Chain Grate Stokers
Babcock & Wilcox, Ltd.

Chemical Extraction Plants
A. F. Craig & Co., Ltd.

Chimneys
Babcock & Wilcox Ltd.
A. F. Craig & Co.

Chromium Steel
Bohler Bros. & Co., Ltd.

Cigar and Cigarette Manufacturers
Cia. Gral. de Tabacos de Filipinas
Germinal Cigar Factory
Olsen & Co., Walter E.

Circuit Breakers
General Electric Co.
Westinghouse E. & M. Co.

Cloth Finishing Plants
Mather & Platt, Ltd.

Coal Handling Machinery
Babcock & Wilcox Ltd.

Coal Mining Co.'s
Kailan Mining Administration
Peking Syndicate, Ltd.
South Manchuria Railway Co.

Concrete Mixers
Austin Drainage Excavator Co.

Concrete Reinforcement
Shewan, Tomes and Co.
U. S. Steel Products Co.

Condensing Plants
Worthington Pump Co., Ltd.

Contractors, Electrical
Mather & Platt, Ltd.
Shanghai Dock & Engineering Co. Ltd.
Arnhold, Karberg & Co.
Shewan Tomes & Co.
Frank L. Strong
Siemens China Co.
Dick, Kerr & Co., Ltd.

Contractors, (General)
Bohler Bros. & Co.
Frank L. Strong
Shanghai Dock & Engineering Co. Ltd.
White & Co. Inc., J. G.

Contractors Supplies
Austin Drainage Excavator Co.

Consulting Engineers
White & Co., Inc. J. G.

Conveyors
Babcock & Wilcox Ltd.

Copper Tubing
Broughton Copper Co., Ltd.
Corrugated Roofing

Corrugated Iron
American Rolling Mill Co.

Counting Machines
W. & T. Avery Ltd.

Couplers
McConway & Torley Co.

Cranes
Babcock & Wilcox Ltd.

Crushers
Lehigh Car, Wheel and Axle Wks.

Culverts
Corrugated Iron

Deodorising Oil Plant
A. F. Craig Co., Ltd.

Diamond Drill Boring
Peking Syndicate, Ltd.

Diesel Engines
Westinghouse E. & M. Co.

Diving Apparatus
A. J. Morse & Son

Door Locks
Jos. Kaye and Sons Ltd.

Drag Line Excavator
Lidgerwood Mfg. Co.

Drawing Instruments
Andersen, Meyer & Co.

Dredgers
Middleton & Co., Ltd.
Priestman Bros. Ltd.
Shanghai Dock & Engineering Co., Ltd.

Drop Steel Forging and Stamping
Anger Mfg. & Supply Co.

Dry Batteries
Andersen eyer and o.

Drydocks
Shanghai Dock and Engineering Co.
Taikoo Dock & Engineering Co.
Hongkong and Whampoa Dock Co.
Mitsu Bishi Dockyards & Eng. Wks

Dyeing Plants
Mather & Platt, Ltd.

Economizers
Babcock & Wilcox Ltd.

Educational
International Correspondence Schools

Electric Hoists
General Electric Co.
Lidgerwood Mfg. Co.

Electric Lighting Plants
Andersen Meyer & Co.
Arnhold, Karberg & Co.
Dick, Kerr & Co., Ltd.
Westinghouse E. & M. Co.
Fearon, Daniel & Co.
General Electric Co.
Siemens China Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
Shewan, Tomes & Co.
Frank L. Strong Machinery Co.
U. S. Steel Products Co.
Western Electric Co.

Electrical Supplies
Andersen, Meyer & Co.
Arnhold, Karberg & Co.
Jardine, Matheson & Co.
Babcock & Wilcox
Fearon, Daniel & Co.
General Electric Co.
Mather & Platt, Ltd.
Shewan, Tomes & Co.
Siemens China Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co. Ltd.
U. S. Steel Products Co.
Western Electric Co.

Engines
Shanghai Dock & Engineering Co., Ltd.
A. F. Craig & Co.

Evaporators
Royles Ltd.

Excavators and Elevators
Austin Drainage Excavator Co.
Priestman Bros. Ltd.
Shanghai Dock & Engineering Co., Ltd.

Explosives
Arnhold, Karberg & Co.
Curtis's & Harvey, Ltd.
Jardine, Matheson & Co.
Rendrock Powder Co.

Fan Blowers
Drysdale & Co.

Feed Water Heaters
Babcock & Wilcox, Ltd.
Royles, Ltd.

Ferro Manganese
U. S. Steel Products Co

Files
Bohler Bros. & Co., Ltd.

Filters (Mechanical)
Mather & Platt. Ltd.

Firebrick
W. H. Anderson & Co.
Kailan Mining Administration

Fire Engine
Dick, Kerr & Co., Ltd.

Fire Prevention Apparatus
Mather & Platt, Ltd.

Filament Lamps
Dick, Kerr & Co., Ltd.
Frank L. Strong
Siemens China Co.
Westinghouse E. & M. Co.

Flat Turret Lathe
Jones & Lamson Mchy. Co.

Folding Chairs
Simmons Mfg. Co.

Food Products
Anderson & Co., W. H.

Forwarding Agents
W. H. Anderson and Co.

Fuses and Fuse Blocks
General Electric Co.
Westinghouse E. & M. Co.

Galvanized Roofing
American Rolling Mill Co.

Gas Engines
Mather & Platt, Ltd.
Worthington Pump Co., Ltd.

Gasoline Lighting Plants
Andersen, Meyer & Co.

Gas Producer Plants
Westinghouse E. & M. Co.

Graphite Paint
J. Dampney & Co.

High Speed Engines
Drysdale & Co.

Hoisting Engines
Lidgerwood Mfg. Co.

Horse Shoes
U. S. Steel Products Co.

Hose
Geo. Angus & Co.
Interlock Metal Hose Co.
F. Reddway & Co., Fire Hose "Sphincter Grip," Armoured Hose, etc.

Hotels
South Manchuria Railway.
Chosen Railways

Ice Machinery
Vulcan Iron Works

Insulating Material
Micanite & Insulators Co., Ltd.

Insurance
Stevenson & Co., Ltd., W. F.

Ironfounders
A. F. Craig & Co.

Job Printers
Commercial Press

Journal Boxes
T. H. Symington Co.

Knitting Machines
Shewan, Tomes and Co.

Lanterns and Lamps
Andersen, Meyer and Co.

Locks
Joseph Kaye & Sons, Ltd.
Shewan, Tomes & Co.

Locomotive Speed Indicator and Recorder
Hasler Telegraph Works.

Locomotive Headlights
Pyle-National Electric Co.

Logging Machinery
Lidgerwood Mfg. Co.

Lubricants
Albany Lubricating Co.
Standard Oil Co.
W. H. Anderson & Co.

Lumber Dealers
Robert Dollar Co.
Jardine, Matheson & Co.
Norton Harrison Co.
Shewan, Tomes & Co.

Machinery Merchants
Andersen, Meyer & Co.
Arnhold, Karberg & Co.
Shanghai Machine Co.
Fearon, Daniel & Co.
Frank L. Strong
Schuchardt & Schutte.
Shanghai Dock & Engineering Co., Ltd.

Machine Tools
American Tool Works Co.
Jones & Lamson Mchy. Co.
Schuchardt and Schutte.

Marine Engines
Fairbanks, Morse & Co.
W. F. Stevenson & Co., Ltd.

Manganese Steel
Edgar Allen & Co.
Bohler Bros. & Co., Ltd.

Manila Rope
Johnson Pickett Rope Co.
Ynchausti & Co.

Measuring Instruments
General Electric Co.
Westinghouse E. & M. Co.

Meat Products
W. H. Anderson & Co.

Mechanical Rubber Goods
F. Reddaway & Co.

Mill Machinery
Shanghai Dock & Engineering Co., Ltd.
A. F. Craig & Co., Ltd.

Mine Locomotives
General Electric Co.

Mine Prospecting and Development
Peking Syndicate, Ltd.

Mineral Oil Plants & Machinery
A. F. Craig & Co.

Mining Machinery
Melchers & Co.
Shanghai Dock & Engineering Co., Ltd.
Shewan, Tomes & Co.
Gould's Manufacturing Co.

Motor Omnibus
Hurst Nelson and Co., Ltd.

Motors
Shanghai D ck & Engineering Co., Ltd.

Motor Launches
Shanghai Dock & Engineering Co., Ltd.

Motor Spirits
Standard Oil Co.

Motor Tyres
Firestone Tire and Rubber Co.
F. Reddaway & Co.

Motor Vehicles
Commercial Car Co.
Fairbanks Morse & Co.

Oil Break Switches
General Electric Co.
Westinghouse E. & M. Co.

Oiled Cloths and Papers
Micanite and Insulators Co., Ltd.

Oil Engines
Fairbanks, Morse & Co.

Oil Mill Machinery
A. F. Craig & Co.

Oil Separators
Worthington Pump Co., Ltd.

Oilwell Casing and Tubing
U. S. Steel Products Co.

Ozone Machines
Siemens China Co.

Packings
F. Reddaway & Co.

Paints, Oils and Varnish
Standard Oil Co.
Albany Lubricating Co.

Photo-Engravers
Commercial Press

Piling (Sheet Steel)
U. S. Steel Products Co.

Platform Scales
W. & T. Avery, Ltd.

Power Plants
Frank L. Strong Machinery Co.

Printing Machinery
Jardine, Matheson & Co.
Shewan, Tomes Co.

Pulleys (Steel)
Schuchardt & Schütte
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.

Pulverizers
Lehigh Car, Wheel and Axle Works.

Pumps
Anderson, Meyer & Co.
Drysdale & Co. Ltd.
Fairbanks, Morse & Co.
General Electric Co.
Jardine, Matheson & Co.
Joseph Evans & Sons
Mather & Platt, Ltd.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
Shewan, Tomes & Co.
The Goulds Manufacturing Co.
Worthington Pump Co.

Pulverizing Mills
Lehigh Car, Wheel and Axle Wks.

Radial Drills
American Tool Works Co.

Railometers
W. & T. Avery, Ltd.

Railroads
Chinese Government Railways
Chosen (Korea) Railways.
South Manchuria
Southern Pacific Co.

Railroad Supplies
American Locomotive Co.
Andersen, Meyer & Co.
Arnhold, Karberg & Co.
Baldwin Locomotive Works.
Robert Dollar Co.
Dick, Kerr & Co., Ltd.
Fearon, Daniel & Co.
Fairbanks, Morse & Co.
Hurst, Nelson & Co., Ltd.
Jardine, Matheson & Co., Ltd.
Lima Locomotive Works.
McConway & Torley Co.
Pyle-National Electric Co.
Railway Signal Co., Ltd., The
T. H. Symington Co.
Shewan, Tomes & Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Rail Weighers
W. & T. Avery, Ltd.

Railway Signals
Railway Signal Co.

Railway Weighbridges
W. & T. Avery, Ltd.

Refrigerating Machinery
Anderson, Meyer & Co.
Vilter Mfg. Co.
Vulcan Iron Works.

Reinforced Concrete Construction
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Rheostats
General Electric Co.

Road Rollers
W. F. Stevenson and Co.

Roofing Materials
American Rolling Mill Co.
W. H. Anderson & Co.
Norton & Harrison.
U. S. Steel Products Co.

Rope Manufacturers
Johnson-Pickett Rope Co.
U. S. Steel Products Co.
Ynchausti & Co.
Shewan, Tomes & Co.

Rotary Converters
General Electric Co.
Westinghouse E. & M. Co.

Rotary Dryers
Lehigh Car, Wheel and Axle Wks.

Rubber Tires
Firestone Tire and Rubber Co.

Safes
W. H. Anderson & Co.
Mustard & Co.
Shewan, Tomes & Co.

Safety Valves
Royles, Ltd.

Saw Mill Machinery
Andersen, Meyer and Co.

Scales
W. & T. Avery, Ltd.

Sewer Pipe & Tile
W. H. Anderson & Co.

Sheet Steel
U S. Steel Products Co.

Shipping Agents
Cia. General de Tabacos
Shewan, Tomes & Co.
Stevenson & Co., Ltd.

Shipbuilding and Repairs
Fiat-san Giorgio Ltd.
Tsingtauer Werft
Hongkong & Whampoa Dock Co., Ltd.
Mitsu Bishi Dock and Engineering Works
Shanghai Dock and Engineering Co., Ltd.
The Taikoo Dockyard and Engineering Company of Hongkong, Limited

Ship-Chandlery
Ynchausti & Co.

Steamship Companies
Cia. Transatlantica.
Robert Dollar Company.
Pacific Mail S. S. Co.
Ynchausti & Co.
Toyo Kisen Kaisha.

Steam Hoists
Lidgerwood Mfg. Co.

Steam Kettles
Royles Ltd.

Steam Turbines
Dick, Kerr & Co. Ltd.
General Electric Co.
Westinghouse E. & M. Co.

Steel Manufacturers
United States Steel Products Export Co.

Steel Works
Bohler Bros. & Co., Ltd.
U. S. Steel Products Co.

Stokers
Babcock & Wilcox Ltd.

Stretchers
Simmons Mfg. Co.

Structural Steel
Bohler Bros. & Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Sugar Machinery
A. F. Craig & Co.

Superheaters
Babcock & Wilcox Ltd.
Schmidt Superheating Co.

Tanks
Pacific Tank and Pipe Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.
A. F. Craig & Co.

Telephones
Anderson, Meyer & Co.
Kellogg Switchboard & Supply Co.
The Western Electric Co.
Westinghouse E. & M. Co.

Testing Machines
W. & T. Avery, Ltd.

Textile Machinery
A. F. Craig & Co.

Tiles and Bricks
Green Island Cement Co., Ltd.
Kailan Mining Administration.

Tin Plates
U. S. Steel Products Co.

Tobacco Dealers
British-American Tobacco Co., Ltd.
Cia. General de Tabacos
Olsen & Co., Walter E.

Tools
American Tool Works Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.

Tool Steel
Bohler Bros. & Co. Ltd.
U. S. Steel Products Co.

Towers Cooling
Worthington Pump Co., Ltd.

Track Gauges and Levels
Fairbanks, Morse & Co.

Tramcars
Hurst, Nelson & Co. Ltd.

Tramway Equipment
Dick Kerr & Co. Ltd.
Westinghouse E. & M. Co.

Tramway Supplies and Specialties
Anger Mfg. & Supply Co., Ltd.

Trucks
Commercial Car Co.

Tube Mills
Edgar Allen & Co.

Tungsten Steel
Bohler Bros. & Co., Ltd.

Turbine Pumps
Worthington Pump Co., Ltd.

Turbo-Blowers
Westinghouse E. & M. Co.

Turret Lathes
Jones and Lamson Mchy. Co.

Valves
Shewan, Tomes & Co.

Vanadium Steel
U. S. Steel Products Co.

Vegetable Oil Plants.
A. F. Craig & Co.

Ventilating Apparatus
Shewan, Tomes & Co.

Water Softeners
Babcock & Wilcox Ltd.

Waterworks Equipment
Edgar Allen & Co. Ltd.
Worthington Pump Co.

Weaving Machinery
Shewan, Tomes & Co.

Weighing Machines—Weigh Bridges
W. & T. Avery, Ltd.

Windmill
Fairbanks, Morse & Co.

Wireless Telegraph Apparatus

Wire Nails
U. S. Steel Products Co.

Wire Rope and Cables
Bohler Bros. & Co., Ltd.
U. S. Steel Products Co.

Wood Working Machinery
American Tool Works Co.
Defiance Machine Works
Shanghai Dock & Engineering Co., Ltd

Wrenches
Trimont Mfg. Co.

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THE GEOLOGIC HISTORY OF CHINA

[BY PROF. ELIOT BLACKWELDER, UNIVERSITY OF WISCONSIN]

The Chinese Empire includes an area larger than the United States with the addition of Alaska and our insular possessions. A large part of this vast area, however, is made up of dependencies which are but loosely joined to China proper, and are not essential to its integrity. She has lost and regained these dependencies from time to time in the past, and the same process may continue. Divested of its outlying possessions, China consists of 18 Provinces, which may be compared in a general way to our States. The Provinces are, however, generally larger than the States and on the whole, much more populous. There is still greater dissimilarity in government because, whereas our States are representative democracies, the Chinese Provinces were, at least until within a year or two, satrapies ruled absolutely by imperial governors or viceroys.

Not a few people in America picture China as a vast fertile plain, perhaps like the upper Mississippi Valley, densely populated and intensively cultivated. In fact, however, it is so generally mountainous that less than one-tenth of its surface is even moderately flat. On the west, especially, it is ribbed with cordillera from which its two great rivers, the Yangtze and the Hwang, flow eastward to the Pacific.

In addition to this diversity of surface, there is also much variety of climate. In the northwest the conditions are dry and severe, like those of Montana and central Wyoming, while in the south-east they are humid and subtropical, approaching those of the Philippine Islands. Such are the extremes.

RELIEF MAP OF CHINA SHOWING THE RELATION OF PLAINS TO MOUNTAINS

It is a fact well known to geologists that continents, and therefore countries, have not always existed in their present state, but that they have been built as a result of successive events and changes of conditions. If we were to dig beneath the surface in any part of China, we should find first one stratum and then another, and we should see also that these strata have been bent, cracked, and otherwise disturbed. Some of these structures are old and some young. It would be somewhat like excavating in an ancient city, where one house or temple has been built upon the ruins of its predecessor, and each affords a crude record of its time. The geologic structure of such a country as China has been determined largely by the rocks of which it consists, partly by the climate to which it has been subject, but chiefly by the geologic events which have occurred during its history.

Of course the beginning of that history of China shades into darkness when we attempt to trace it back into the remote ages. But the present features of the land are chiefly due to the later events in its life, and these have been partly worked out by the geologists who have explored its surface.

We may take as a convenient starting point for our interpretation a time far back in geologic chronology, when China was a land surface which had been exposed to erosion so long that nearly all the hills and mountains that may have existed there before had been worn away, leaving a relatively flat plain, with groups of low hills here and there. The rocks beneath this plain were of various kinds, most of them highly folded. Eventually this surface was submerged beneath a comparatively shallow inland sea; and although the uneasy movements of the earth's body caused the sea bottom to emerge occasionally, it remained below the water nearly all through the geologic periods which constitute the Paleozoic era. By the end of that time we may picture China as a shallow sea bottom rising very gradually to a marshy coastal plain on the east. During the long intervening ages the accumulation of sediments upon the sea bottom had formed successive layers of limestone, shale, and sandstone,

which eventually reached a thickness of 5,000-10,000 feet.

This condition did not hold without end, for eventually strong compressive forces engendered in the underlying body of the earth squeezed the superficial rocks into folds, and thus bulged the surface high above sea level in the region so affected. By the prompt attack of streams, winds, glaciers, and the other agencies which are incessantly sculpturing the surface of the earth, these elevated districts were, even while rising, carved into rugged mountains and deep valleys, so that the original folds were greatly disfigured, even before the compressive force ceased to operate.

It is a fact generally recognized among geologists that in terms of geologic time such episodes of compression and folding are short lived. They are soon followed by much longer periods, during which the internal forces of the earth are quiescent but in which the erosive agencies have free play. If any land remains indefinitely above sea level and is not disturbed by movements from below, the mountains and hills will eventually be worn away and there will be left only a broad, almost featureless, plain. It is believed that China, in consequence of such a period of quiescence, was reduced to a lowland from which almost all of the pre-existing mountains had been removed. In this condition it probably remained for more than one geologic period, and the western part may even have been submerged beneath the sea which at that time covered northern India and part of Tibet. In that sea were deposited the thick beds of limestone which are now found in some of the western mountain ridges.

Again, in the Miocene period the forces of distortion within the earth accumulated to such strength that they were able to repeat the mashing and folding, but this time the area affected lay farther to the west and south. At the same time, or perhaps earlier, the eastern part of China was cracked in various directions; and the intervening blocks, settling somewhat unevenly upon their bases, left a group of escarpments and depressions comparable to those now to be found in western Nevada and southern Oregon. As before, the work of erosion and the leveling of the surface was at once accelerated, so that even before the deformation had spent itself the blocks were deeply scarred. It is uncertain how far this period of erosion succeeded in reducing China to base level. The consummation may have been prevented by gentle warpings of the surface, rising very slowly here and sinking there. When compared with the great breadth of the areas affected, these changes of level seem very slight, but they are nevertheless sufficient to cause great changes in the aspect of the country.

It is one of the basal principles of physiography that streams tend to produce in their channels an almost uniform slope from their head-waters to the sea. If any part of the channel is so flat that the stream is too sluggish to carry sediment, it is built up until it reaches the required gradient; and on the other hand, if any part has too steep a declivity, it is gradually worn down to the proper slope. In consequence of this law, the parts of China which were slightly bulged above their original levels were reattacked by the branching systems of rivers with renewed vigor. By carving out the softer rocks, these have made deep valleys with intervening mountain ranges.

Some of the larger rivers, such as the Yangtze, maintained their courses in spite of the slow uplifts directly athwart their courses. A result is the magnificent series of gorges along the central Yangtze where the great river has sawed its way through a slowly rising mass of hard, complexly folded rocks.

On the other hand, the broad areas which were depressed not only below the general level of stream action, but below sea level, were rapidly filled with sand, loam, and clay washed down out of the adjacent mountains by the streams. The process of filling the depressions is the exact complement of the process of etching out the highlands. No doubt the rivers have been able in large measure to keep pace with the sinking movement of the ground, so that great rivers like the Hwang may have maintained perfectly graded courses across the region of depression from the mountains to the sea. While thus engaged in building up its channel, the river in time of flood frequently breaks through its low banks, shifts its channel, and then begins to fill up a new and hitherto lower part of its surroundings. By the long continuance of this process of repeated shiftings and fillings, the great eastern plain of China and many smaller plains have been produced. It is here, where the population is densest and the rivers least confined, that the devastation by floods and their attendant famines is greatest.

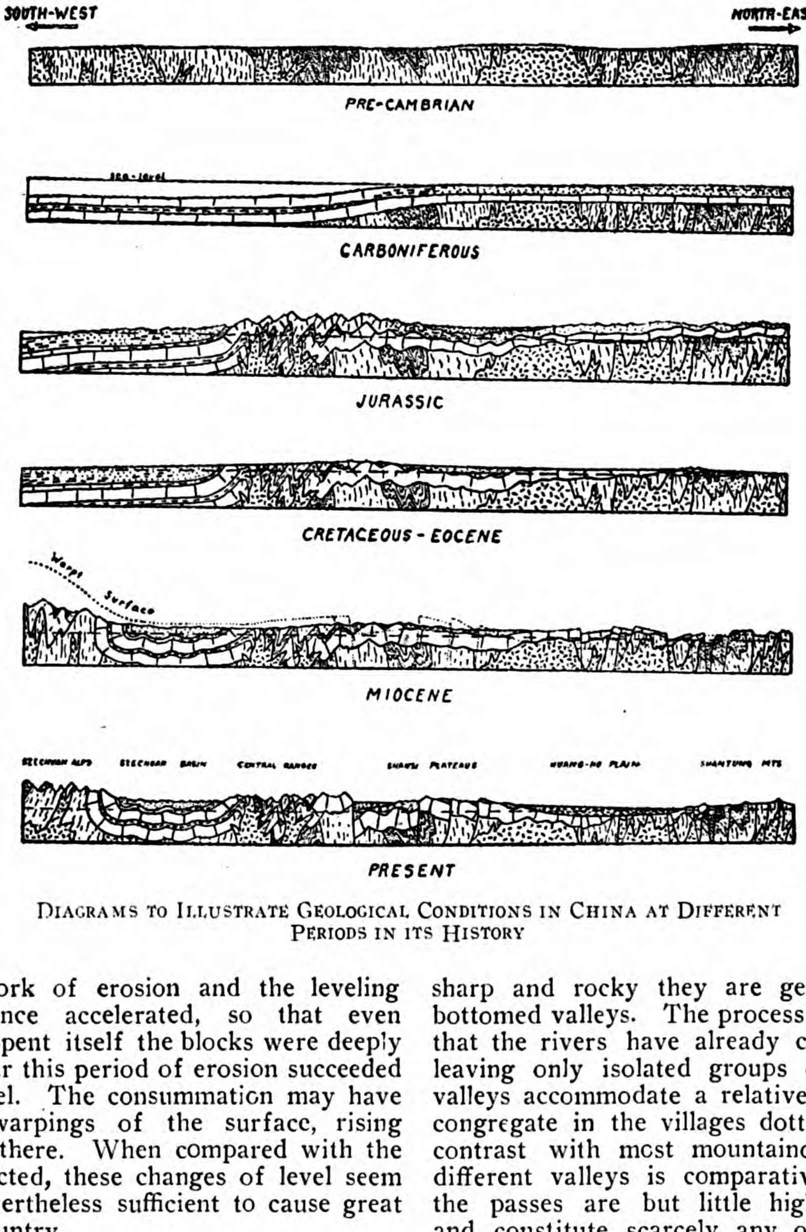
By this succession of events the surface of China is believed to have reached its modern condition.

We may now consider it piecemeal and see how the existing geologic conditions, which are the result of this long series of past changes, influence the habits, occupations, and even mental traits of the people. Because space is limited and also because I have not seen all the physiographic divisions of China, it will not be possible for me, even briefly, to describe each of them. A few are therefore selected to show the range of variety of the whole.

The mountains of north-eastern China, typified by the province of Shantung, are unlike those of the rest of the country in several respects. Although the individual peaks are often sharp and rocky they are generally separated by wide, flat-bottomed valleys. The process of erosion has here gone so far that the rivers have already carried away most of the land, leaving only isolated groups of low mountains. The broad valleys accommodate a relatively large number of people, who congregate in the villages dotting the intermontane plains. In contrast with most mountainous regions, travel between the different valleys is comparatively easy here, because many of the passes are but little higher than the plains themselves, and constitute scarcely any obstacle to progress. Roads are plentiful, and so the cart and the wheelbarrow are the principal vehicles for through traffic.

This is one of the few parts of China where boats can be but little used. The streams are shallow and full of sand bars, and on account of the pronounced wet and dry seasons many of them are intermittent. For these reasons the majority of them are not navigable.

The deeply eroded land of Shantung has, however, suffered a relatively recent movement—apparently a sinking of the land—



Diagrams to Illustrate Geological Conditions in China at Different Periods in its History

which has allowed the ocean to penetrate the mouths of many of the coastal valleys. This marginal drowning has produced some excellent harbors, such as that of Chefoo, the great silk port, and Tsingtau, the German stronghold.

On the west, and encircling the Shantung hills, lies the great plain of the Hwang or Yellow River, which will serve as the type of many much smaller plains in various parts of China. As explained before, this vast gently sloping plain has been built by the Yellow River and some of its tributaries in an effort to preserve a uniform gradient across the sunken portion of eastern China. Like the Lower Mississippi and all other rivers which are building up rather than cutting down their beds, the Hwang is subject to frequent floods and occasional shiftings of its channel. Its course between the mountains and the sea has thus been changed more than fifteen times in the last 3,000 years. In these incessant shiftings the river has strewn all over an enormous area, 500 miles from north to south by 300 miles from east to west, layer after layer of fine yellow loam or silt; the very name "Yellow River," which is a translation of the Chinese "Hwang-ho," suggests the close resemblance to our own mud-laden Missouri. Almost every square foot of this vast alluvial fan is, of course, underlain by a deep and fertile soil, and is intensively cultivated by the industrious Chinese inhabitants.

One sees no large fields of grain, such as those on our Dakota prairies, but, instead, thousands of small truck gardens belonging to the inhabitants of the hundreds of little mud-walled villages with which the plain is dotted. The ever-present town walls have doubtless been built because the inhabitants have no natural refuges, as their mountain cousins have, and their very accessibility has made them in the past the frequent prey of Mongol and Tartar invaders or of rebels and rioters from within their own country.

Since the water supply of the plain is not lavish, but little rice is grown there. The dry-land grains and such vegetables as cabbages and potatoes are the staple crops. The small gardens are sparingly irrigated, however, in times of drought, by water taken from the canals or wells, with the help of various types of crude pumps operated by men or by donkeys.

In this densely populated alluvial plain there is practically no pasturage and no woodland. From the very nature of the plain it could not yield coal, which is always associated with the solid rocks. To bring fuel, as we do, from distant parts of the country is impossibly expensive for the Chinese, without an adequate railroad system, and that is still a thing of the future. When the harvest has been gathered in the autumn the village children are therefore sent out to gather up every scrap of straw or stubble that can be used either for fodder or for fuel.

The fields thus left perfectly bare in the dry winter season afford an unlimited supply of fine dust to every wind that blows. This is doubtless the explanation of the disagreeable winter dust storms with which every foreigner who has lived in northern China is only too familiar.

Although carts and wheelbarrows are much used on the Hwang plain, their traffic is chiefly local. That may be due in part to the fact that the numerous wide and shifty rivers are difficult to bridge, while ferrying is relatively expensive. Another, and perhaps more important, reason is that the rivers, and particularly their old, abandoned courses, afford natural waterways which are available nearly everywhere. By taking advantage of these or by deepening them, and in some places by actually digging canals through the soft material of the plain, the Chinese have put together the wonderful system of interlaced canals for which they have been renowned since Europeans first visited them. The thousands of junks which ply these waterways maintain a volume of inland commerce, which is inferior only to that of the great railroad countries, such as the United States. The relative freedom of communication in this great plain of the Yellow River has helped to bring about a greater homogeneity in the people than in any other equally large part of China. Here we find a single dialect in use over the entire region, whereas in some parts of southern China the natives of even adjacent valleys speak languages almost unintelligible to each other.

A Valley in the Tsin-Ling Mountains of Central China

The other common effects of isolation, such as the lack of acquaintance with the customs of outside peoples, the hatred of foreigners, the peculiar local usages, and many other things, are less prominent here than in other parts of the empire. Excepting the coastal cities, there is no safer part of China for foreigners to travel through.

West and northwest of the Yellow River Plain lie the more rugged plateaus and mountains of northwest China, with their subarid climate presaging the approach to the deserts of Mongolia. Over much of this region the ancient limestones and sandstones are still horizontal or are gently folded, with occasional dislocations along faults. On account of the comparatively recent uplift and differential warping which this part of China has suffered, the streams have been greatly accelerated in their work, so that they have hollowed out canyons in the raised portions and have filled in the depressed basins with sand and silt. This is the region celebrated among geologists on account of the loess, or yellow earth, which lines the basins and mantles the hillsides everywhere. It is believed that this is very largely a deposit of wind-blown dust, although it has been worked over considerably by the streams from time to time. No doubt Baron von Richthofen, the distinguished German explorer, was near the truth when he concluded more than 40 years ago, that the "Yellow earth" was the dust of the central Asian deserts carried into China by the northwest winds.

The presence of the loess determines, in large measure, the mode of living adopted by the inhabitants. Because of its fertility and moisture-conserving properties, it is well adapted

MOUNTAIN STREAM ERODING BANKS, WASHING OUT RUDE TRAILS

to dry farming, and there is little water for irrigation. The Chinese are not content with using the level bottom lands, but successfully cultivate the hillsides wherever a deposit of the loess remains. In order to prevent the soil from washing off from these steep slopes, they build a series of stone walls, thus forming soil reservoirs or terraces. In this way nearly all of the soil is utilized.

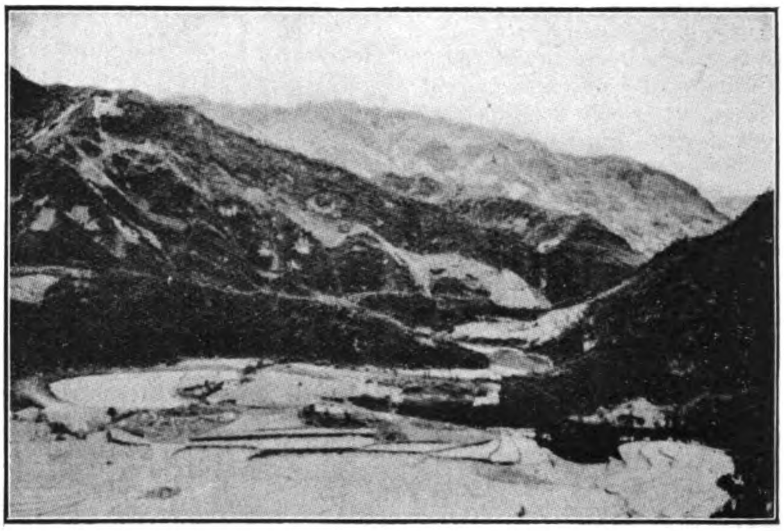
In such a country rivers are not numerous and those which exist have many rapids and shoals. Boats are therefore but little used in northwest China. For both passenger and freight traffic, pack animals or rude vehicles are the chief reliance. For passengers there are also the palanquin or sedan chair and the mule litter. Where the country is not too rough, the two-wheeled cart is the usual conveyance for merchandise. Over the mountain passes, however, and in many of the smaller valleys, roads are so narrow that carts can not be used, and so here pack animals, particularly horses and mules, are substituted. The traveler in this part of China is often reminded of his proximity to Mongolia by the frequent sight of camels. They are nevertheless not indigenous beasts of burden and the inhabitants themselves do not use them.

In consequence of the swampy state which prevailed in this part of China far back in the carboniferous periods, thick deposits of coal were formed. These are now exposed in the deep valley slopes between beds of limestone and sandstone, and the circumstance has made Shansi Province the principal coal-producing district of China. The coal is mined by very primitive methods and as there is still no adequate system of railroads in this or any other part of the empire, the product can be transported only in carts or on pack animals. Either of these modes of carriage is so expensive that it becomes unprofitable to transport the coal more than 60 to 100 miles from the mine, and so the denizens of a great part of northern China, where fuel is scarce and the winters are severe, are no more able to obtain it than as if the United States contained the only coal fields in the world. The advantages that will accrue from the building of railroads in northern China are many, but one of the greatest will be the wide distribution of this essential fuel.

In going south by west from the plateau country, one enters a region of warmer climate and more generous rainfall, which, for want of a more distinctive name, I have called the Central Ranges. This is the part of China which was particularly affected by the rockfolding movements of the Jurassic period, and which in a much more recent time has been reelevated and therefore newly attacked by the streams and other erosive agencies. Broadly regarded, it is a complex of sharp mountain ridges and spurs with narrow intervening valleys.

The ridges are not so high, however, but that they are clad with vegetation, and the scenery is therefore not alpine. The surface is nevertheless very rugged and its internal relief averages at least 3,000 feet. The roughest parts of our Carolinas resemble it in a measure. In such a region obviously there is no room for a dense population. Wherever there is a little widening of the bottom of the valley there is a farm or occasionally a small village, and even the scattered benches high up the mountain sides are reached by steep trails and dilligently cultivated. But even when all of these are combined, the total area of land under settlement is relatively small.

In this region there are no railroads whatever, and although wagon roads could be built in some places, they would be expensive and the Chinese have not yet attempted to make them. All travel and commerce, therefore, depend on the agency of pack animals or coolies, and the roads they follow are mere trails winding around the steep mountain sides or threading the bottoms of narrow valleys, where swift streams must be forded at frequent intervals. Under such circumstances it is evident that there can be but little effective traffic. Only comparatively light and expensive articles can be transported long distances. Around the edge of the mountain mass where the populous cities of the adjoining plains can be reached with one or two days' travel there has been for centuries an important trade in lumber. The mountains have now been so largely deforested, however, that it is necessary to go farther and farther back into the heads of the valleys to find large trees.



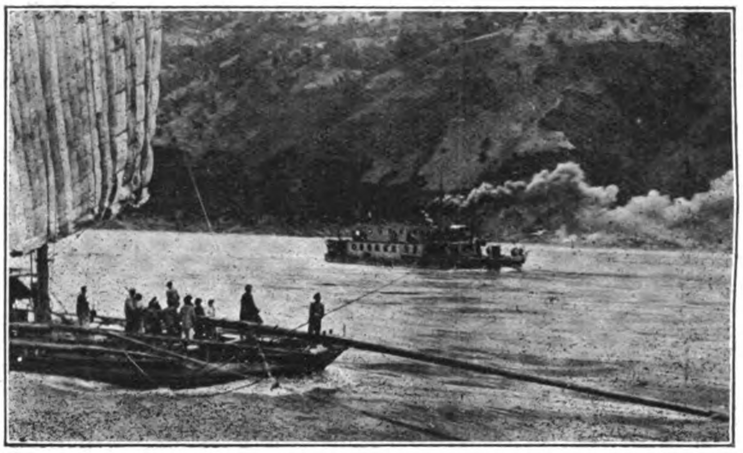
VALLEY FARMING LAND FORMED BY EROSION AND DEPOSITION OF SILT

Hence only the more expensive kinds of lumber, such as coffin boards—which are absolutely indispensable, even to the poorer classes—can profitably be brought out. These are often carried for 20 or 30 miles on the backs of coolies—a costly mode of transportation. The smaller trees and brush the mountaineers convert into charcoal; which they carry on their own backs down to the towns along the foothills.

Lack of transportation facilities is doubtless the chief reason why the opium poppy has in the past been widely cultivated in this part of China, although the practice has lately been prohibited by the Government. The advantage in poppy culture was that it could be carried on in small scattered fields and the product was so valuable for unit of weight that it would pay for long-distance transportation across the mountains. The inhabitants of the region themselves were not, however, generally addicted to the use of the drug.

The rainfall of the central mountain region is sufficient to supply the many springs and tributary brooks of which the people have made use in irrigation. The mildness of the climate here permits the growing of rice, and by terracing the hillsides they are able to make a succession of narrow curved basins, in which the aquatic crop may be grown. For the cultivation of rice it is necessary that the fields be completely submerged during part of the season, and so there must be a plentiful supply of water.

Narrow Mountain Pass



Yangtse River Gorge

On the larger rivers, such as the Han and the Yangtze and their chief tributaries, boats are successfully used. In fact, the Chinese river boatmen are so skillful in the handling of their high-prowed skiffs that they navigate canyons full of rapids which most of us would consider too dangerous to attempt. The descent of one of these rivers is an easy although exciting experience. The return trip, however, is slow and laborious, for the boats must be dragged upstream by coolies harnessed to a long bamboo rope, which has the advantage of being very light as well as strong. In the many places where the river banks are so precipitous that it is impossible to walk along them it becomes necessary for the boatmen to spole around the cliff or to zigzag from one side of the river to the other to take advantage of every foothold.

Through the central part of this mountain uplift the great Yangtze River, which in its lower course readily accommodates large ocean going vessels, has carved a succession of superb gorges. In many places the gray limestone walls rise from 3,000 to 4,000 feet above the river, and the stream is compressed into less than a tenth of its usual width. Difficult and dangerous as are these canyons, beset with rapids and whirlpools, they afford the only ready means of communication between eastern China and the fertile basin of Szechuan, which lies west of the Central Ranges.

Deep Gorge Worn by River at Tachienlu, Szechuan, in Soft Red Sandstone

Without the highway of the Yangtze this great Province, four times as large as Illinois and with more people than all of our States east of the Mississippi River, would be unable to export its many rich products or to enjoy the commerce of outside Provinces and nations. It has been effectually barred off from India and Burma by the succession of high ranges and deep canyons which appear to be due primarily to the great epoch of folding in the Miocene period. Szechwan is a broad basin which has never been depressed low enough to force the streams to level its bottom with alluvial deposits, as in the Yellow River plain to the east; nor does it seem to have been carved by many streams into a rugged mountain country. The soft red sandstone beds which underlie it have therefore been sculptured into a network of valleys with intervening red hills or buttes. With a climate as mild and moist as that of Alabama and a diversified topography, there is opportunity for many industries and for the cultivation of a great variety of crops. Szechuan leads all the Provinces in the exportation of silk. Here grow the lacquer and oil nut trees and a wide range of field and garden fruits, grains, and vegetables. Ample water for irrigation and especially for rice culture is supplied by the many perennial streams which descend from the encircling mountains.

These uplifted and now mountainous tracts have also served as a barrier to invaders from all directions, so that this has been less subject to wars than almost any other part of China, and hence has been more stable in development. Its inhabitants are among the most substantial and progressive components of the Chinese nation.

We now come to the last of the geologic divisions which were laid out for consideration. From the Szechuan Basin southwest to the confines of India there extends a series of high mountain ranges separated by deep and narrow valleys, all trending in a south or southeasterly direction. Although not so high above sea-level as the mountains north and south of Tibet, these ranges are an even more effective barrier to travel because they are so continuous and the relief is so great. Not only is there no waterway but there are no wagon roads, and the building of a railroad would be a stupendous and expensive engineering task. Such a road would necessarily involve the making of a succession of long bridges and tunnels. Here, as in the central ranges, settlements are limited to the rare open spots in the bottoms of valleys, and so the population is sparse indeed. The total commerce is very small in volume, because oods must be carried almost entirely on the backs of coolies. The rugged characteristics of the region are evidently the direct result of the compressive movement which produced the tremendous mountain folds, and perhaps are still more due to the renewed uplifts which have permitted the streams to continue the carving of their deep gorges. This part of China is geologically very young, and to quote the words of the distinguished old geologist of California, Joseph Le Conte, "the wildness of youth (here) has not been tempered by the mellowness of age."

JAPAN AND CHINA

The Genesis of the Demands: the Responsibility of Baron Kato

(By Britannicus)

Japan, August 1.

Those of us who have some knowledge of Japanese politics have followed recent events in China with much interest. We have not been surprised that British communities in the neighbouring Republic have risen up in astonishment at the apparently tortuous course of Japanese politics in the country in which they reside. They have had good reason for doing so. But in fairness to the Japanese it is right that certain explanations should be made, explanations that palliate the recent occurrences, though they by no means excuse them.

Many of us who know Japan are of the opinion that the Japanese Government have no fixed policy in regard to China. Nor does there seem to us to be any individual statesman in Japan possessed of convictions as to the line Japan ought to follow in China—that is to say any revealed statesman with convictions founded on knowledge and understanding of the situation. Every politician in Japan thinks Japan ought to do certain things in China, but the opinions of most of these are based on blissful ignorance of outside considerations, such as the feelings of the Chinese and the interests of other Powers.

Recent events justify this conclusion. The Japanese Government presented to China a series of demands, which were drastically modified in consequence of foreign disapproval. It may be fairly said that a section of these demands, if conceded, would have conferred upon Japan a large measure of political control over China. If it had been the intention of the Japanese seriously to pursue a policy involving so important and far-reaching a result they ought before adopting it to have considered their relations with other countries and their own power in the Pacific. Either, therefore, the policy indicated was never seriously meant; or, if it was meant, an att tude was foolishly taken up which, when it came to the point, was recognised to be incompatible with existing engagements and not justified by the military power of Japan. In my opinion the Japanese Government did not themselves fully realise the significance of their demands upon China, while those members of the Government who may have realised it did not expect to be successful, except in so far that something might be snatched at an opportune moment. But whatever the motive, there is indicated the lack of fixed policy. Japan wants many things in China, but she cannot be said to have a policy until her wants have been crystallized into something concrete and practical. What was demanded from China the other day was neither one nor the other, or a decidedly ignominious retreat would not have been necessary.

Incidentally there has been manifested an astonishing lack of statesmanship. Japan has obtained some things that were necessary to her, but at the expense of a check to her trade, of doubling Chinese fear of her, and of arousing foreign suspicion of her motives. What she needed and what all the world would have regarded as reasonable, she might have obtained with much less offence to China, and without arousing foreign suspicion. There is no doubt that Baron Kato is mainly responsible for the mistakes made. It is understood here that the demands were compiled from statements of Japanese needs, presented by all departments when it became obvious that the moment was opportune for action, and included things permanently in the mind of the Foreign Office, such as the extension of the leases. Thus while it may be true that the demands were an expression of the wishes of the country in general it was the business of Baron Kato as Foreign Minister to formulate them. This he did apparently without consultation with Cabinet or Genro. When formulated the demands were approved by the Cabinet and the Genro. But it is well known that some members of the Cabinet did not understand what their consequences might be, simply because of their ignorance of foreign politics. They did not realise for instance that Great Britain would object to Japan obtaining a considerable degree of political control in China. It was a new aspect to them that Japan's rise in the Far East has been marked by a closing of the door successively in Formosa, Japan itself, Korea and partly in Manchuria, and that Great Britain with her large trade, and enormously predominant established interests in China could hardly be expected to contemplate with satisfaction the arising of a state of affairs which would give Japan further opportunities for shutting doors.

I am labouring this point with the object of showing that the demands upon China were not the outcome of a calculated policy on the part of the rulers of Japan. I place no limits at all on what the Japanese, from the senior Genro down to the poorest elector, would take from China if they were not restricted by circumstances. But it is another thing to suppose that Japan, in the person of its responsible Government, made a deliberate and Machiavelian attempt to "jump" an enormous claim in China. It certainly does look as if such an attempt was made, but I do not believe it was seriously meant. and in support of that belief there is the fact that the dangerous demands were withdrawn when it came to the point.

Various explanations offer themselves, as to why an obviously false step was taken. I feel sure the mistake would never have been made if there had been an Ito alive in Japan or if the Genro had not been in their dotage, collectively and individually. I am satisfied that whatever amount of blame has been incurred ought to be apportioned mainly to Baron Kato. He is the only strong man in the Cabinet,and probably the only one who has a real grasp of foreign politics. He is unpopular throughout Japan and with his colleagues, because of his brusque manners, and his generally European ideas. He leads his party through force of character, not through popularity. He deems himself supreme in his own department, and takes little interest in domestic affairs. In the matter of the demands, I believe, everybody else followed him like sheep. There are certain excuses to be made for him. For instance, it was reasonable to ask from an Oriental country far more than it was expected to obtain. Further, in these days in Japan, when the Anglo-Japanese Alliance is openly criticised and Baron Kato commonly accused of being merely a tool of the British Government, it was not unreasonable for him to pursue a line which gave the impression that he was acting independently of the wishes of the British. Then there is the insistent demand in Japan for a forward policy in China, and with an election pending, it was not unreasonable for him to make a theatrical display of activity in China.

Where Baron Kato went wrong was in including in the demands things that were bound to arouse foreign opposition, and in trying to obtain them behind the backs of the Powers interested. But even in this respect there is an excuse to be made for him, though not a very creditable one. But within this excuse is to be found what I believe to be the key to the recent proceedings in China. It is the fixed conviction of everybody acquainted with FarEastern affairs—from theFarEastern point of view—that since the Russo-Japanese war the British Government, where British interests have been concerned, have never been frankly dealt with by Japan; and that if the British diplomatic representation in Tokio had been more intelligent the Foreign Office in London would have had a better understanding of Japanese methods. But I expect the Foreign Office, say since the annexation of Korea, has been under no delusion as to the straightforwardness of the Japanese, although no sign of this disillusionment has ever been outwardly shown. But the *naïveté* of the Japanese is such that they have supposed that the British were permanently shortsighted, and that it would always be easy to throw dust in their eyes, and to explain afterwards what happened behind the

dust. In my opinion Baron Kato traded on the belief that he could play any old game on the British. Hence, tacked on to the comparatively legitimate demands on China, were as pretentious a set of proposals as were ever formulated. So pretentious were they that they were not fit for communication to the British or any other Government. But Baron Kato, ignorant of China and Chinese ways, and employing Dr. Hioki, equally ignorant, foolishly tried to rush the Chinese all of a sudden into acceptance. He hoped to get some of Group Five, and to make some of what he got good thereafter. Judging by past experience of the British, he doubtless thought to himself, there would be no difficulty in explaining things away to them. America would have no ground for complaint if the British were satisfied. No other Powers were sufficiently interested, especially at such a crisis in their own affairs, to care what Japan did in China. It is evidence of Baron Kato's ignorance of China that he did not expect that the Chinese would let the cat out of the bag. To everybody out here, it is obvious that the Chinese could never have observed secrecy, for it is always their way, as it is the way of all Orientals, when being harrassed by one Power to tell the trouble to all the others.

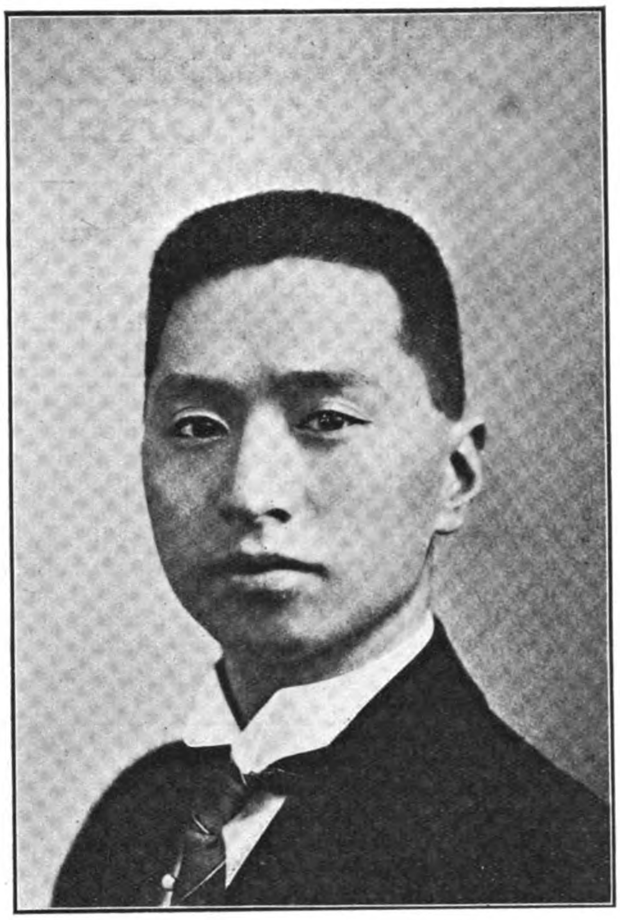
Further in support of the theory that Japan has no fixed policy in regard to China is the attitude of the country during the negotiations in comparison with its attitude since they were concluded. The Press eagerly welcomed the evidence of a forward policy in China. Its only criticism of the Government was that they were not strong enough in dealing with the Chinese. It was urged that force should be applied in order to obtain what was wanted. As we know, troops were actually sent to China, and others were mobilised in readiness, while the fleet was active on the China coast. In the midst of all this hubbub the elections took place, and the Okuma Government was returned to power with an overwhelming majority. Clearly the country subscribed to what was being done.

But what has been the result? Japan is now disgusted with its government for getting into bad odour in China and for embroiling it with foreign Powers. The most determined efforts have been made to get the Okuma Government out, and particularly to force Baron Kato to resign. The Government have been saved by the proximity of the Coronation, but it seems the universal opinion that they will have to go eventually, because of their mishandling of the opportunity in China. In other words Japan does not know what it wants. It is cross with the Government, not because of the demands, which are not really understood, but for getting the country into trouble.

To my mind it is very valuable to establish—as I have endeavoured to do—that with certain known exceptions Japan has no clearly defined aims in China, and particularly to establish that the recent demands were not the outcome of a deliberately adopted policy. If the latter were the case, the inclusion in the agreement with China, of the stipulation that Group Five was only left over for future consideration, would be ominous of her intentions in the future. But I believe that this stipulation was inserted merely to save face and that there is no intention to resuscitate the obnoxious demands in the near future.

In the mind of Japan there are vast but vague expectations of future economic and political conquests in China. The important thing from the foreign point of view is that these remain indeterminate, and that Japan recognises that, financially restricted as she is, she cannot realise them in opposition to the wishes of the rest of the world.

DR. WELLINGTON KOO



DR. V. K. WELLINGTON KOO
Chinese Minister to Mexico

Mr. Chen Loh, Chinese Minister to Mexico, having been appointed Resident-General of Autonomous Outer Mongolia, President Yuan Shih-kai on July 11 appointed as his successor Dr. V. K. Wellington Koo. In the capacity of Senior Councillor of the Chinese Foreign Office, Dr. Koo rendered valuable and important services to the Government, and his elevation to the rank of a Plenipotentiary is acclaimed as a thoroughly well-deserved recognition of conspicuous merit. Dr. Koo left China for America early in August.

The new Minister to Mexico was educated at St. John's College, Shanghai, Cook Academy in New York State, and graduated from Columbia University, New York, with the degree of B.A. in 1909, after which he took up post-graduate studies, qualifying for the M.A. and Ph.D. degrees and specializing in International Law and Diplomacy under Professor John Bassett Moore, the foremost American authority on these subjects. Dr. Koo wrote much in the United States and is the author of a now well-known monograph, "The Status of Aliens in China."

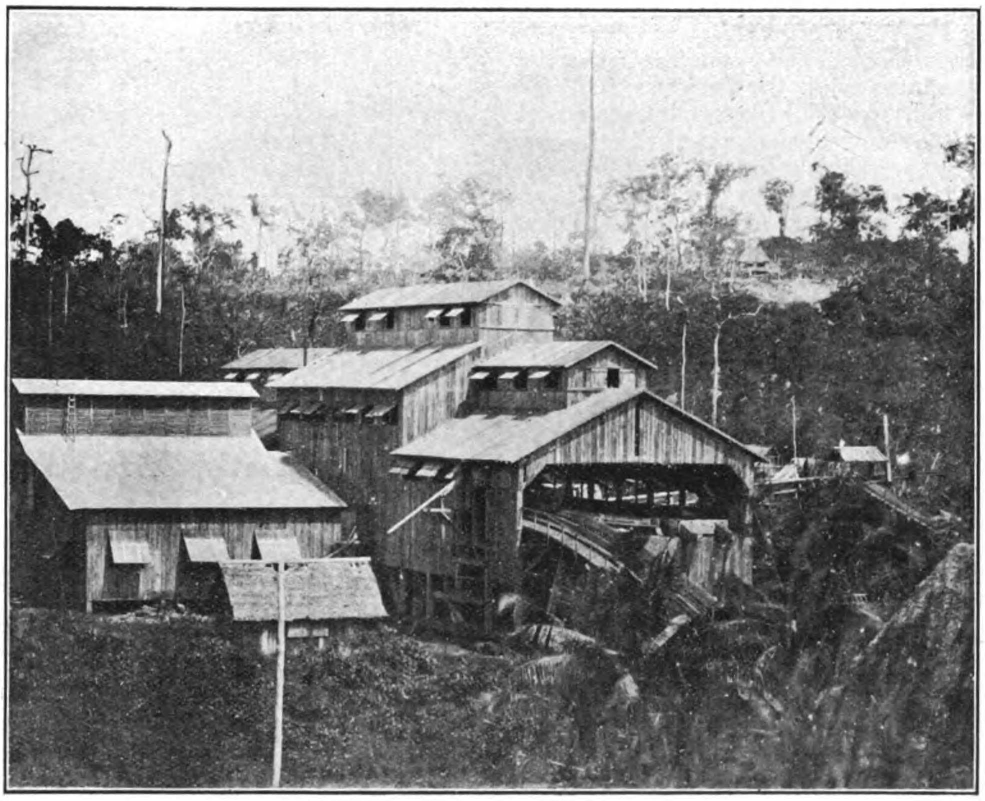
When Mr. Tang Shao-yi was sent as Special Ambassador to Washington in 1908, he was instructed by the President, at that time Grand Councillor of State, to keep an eye on the best students in America. Mr. Tang on his return recommended Dr. Koo as the brightest of the Chinese students then studying in the United States. In 1912 the Government repeatedly wired to Dr. Koo requesting his immediate return to China to serve under the President as his English Secretary. On his return he was at once appointed Secretary of Cabinet as well as Secretary to the President. On the Premier's resignation he was appointed Secretary of the Wai Chiao Pu and later promoted to be Acting Councillor and then Councillor of the Ministry. In that capacity he ably assisted the chiefs of the Board in all important questions.

The President has frequently sent for Dr. Koo to attend the palace Conferences. He is one the most conscientious young public servants in the Government service and enjoyed the confidence of the President and the Minister for Foreign Affairs. Dr. Koo has also served on many important Commissions during his tenure of office in the Wai Chiao Pu. He was Chairman *pro tem* and member of the Treaty Study Commission, the Hague Peace Conference Commission, the Joint Commission of the Ministries of Justice and Foreign Affairs to study the Mixed cases between Chinese and Foreigners, and the 1911 Revolutionary Claims Commission. He served also on the Commission to devise means for the Reform of Customs Duties and on the Commission to draft a Constitution for the Republic. He was awarded the Third Class Chia-ho Decoration in 1913, and Second Class of the same order just prior to his departure for America.

PHILIPPINE WOODS FOR THE CHINA AND FOREIGN MARKETS

[BY W. F. SHERFESEE, DIRECTOR OF FORESTRY, PHILIPPINE ISLANDS]

Less than two days steaming distance separates the Philippines from China; and yet it would be difficult to find a greater contrast in such close juxtaposition anywhere else in the world. China we find teeming with a dense population of about 400 million souls—and a scarcity so great as to be almost a complete lack of the forest resources upon which the material welfare of the industrial advancement of the people must so intimately depend. In the Philippines we find a comparatively scanty population and abundant forest resources. In fact, so prodigal has nature been with her gifts in this respect that according to reliable estimates the annual growth in the Philippine forests is nine or ten times as heavy as the amount of timber cut and utilized under license. On the one hand, then, a huge and vigorous society is hampered on every side by the lack of wood for fuel and other domestic purposes and for industrial use. Only a short distance away another and widely different society is handicapped through lack of money to develop its huge but inadequately utilized forest resources. The one country must have timber and other forest products and is willing to pay for them and the other country is equally anxious to sell. The logical deduction is obvious. Both countries would profit enormously by the opening up of a large market in China for the excess forest products of the Philippines. We in the Philippines must utilize our forests to the limit of their productivity, but in such a manner that the forests as a whole will not be impoverished or destroyed, and we must look to China as one of our principal markets for our surplus lumber. It is, therefore, most important that the lumber dealers and users in China should know of the opportunity which awaits them in the Philippines for obtaining the products they need; and it equally behooves the Philippine lumber producer to study the market conditions in China so as to enable him to meet the demand which undoubtedly exists.



A MODERN SAWMILL IN THE PHILIPPINES

In establishing a close market relationship between China and the Philippines we are confronted at the outset with the very great handicap of difference in language, difference in customs, difference in units of measurement and difference in needs;—and at first at least it is difficult for us to understand each other. At present also, owing to the European war, the Philippine exporter finds great difficulty in securing transportation at a reasonable price; but none of these difficulties or others which will possibly occur to the reader, are insurmountable if they are taken up actively and vigorously and if sound business methods and judgment are applied to their solution. The principal purpose of this article is to set forth for the lumber dealer or user in China the opportunity which the Philippines present.

More than 99% of all standing timber in the Philippines is owned by the Government and administered under a license system. The forests of the Philippines cover approximately 40 million acres or about 60,000 square miles. This is equal, roughly, to the area of the State of New Mexico; two thirds or about 40,000 square miles are covered with virgin forests, the remaining 20,000 square miles being covered with so-called "second growth" forest, much of which is of value only for local or domestic use. The supply of timber is, as has been stated above, much greater than will probably ever be needed for local consumption. Moreover, the number of species is so great and their qualities so varied that wood consumers will be able to find here one or more kinds of wood excellently suited for any of the many uses to which wood is ordinarily put. In fact, probably few countries of the world possess in an equal area so large and varied a supply of hard, beautiful and durable woods as are found in the Philippines. Up to the close of the last century there was little definite information concerning the qualities, and still less of the quantity, of most of the Philippine woods, with the exception of a few of the finest species such as narra, camagon, ebony, acle, ipil, and a few others. During the Spanish regime the forests were explored only to a slight extent except in the more accessible portions of the best known islands of the archipelago. Timber was cut almost only to supply the local demand and the exports were restricted to the strong, durable timbers sold to China for purposes of naval construction and of occasional small lots of cabinet woods sent to Spain or other European countries. Logging operations were primitive in the extreme. A few small steam and water power mills had been established, but the equipment would be considered woefully antiquated and inadequate by a lumberman of to-day; and the total output from such mills throughout the entire archipelago was much less than that produced in the aggregate by the laborious whipsawing method. For hauling logs out of the forest animal or man-power alone was available and, even under the cheap labor conditions which then existed, it was not practicable to operate for a greater distance than three or four miles from water. Hence only the finest and most expensive woods were felled and logged and thus during the early days of the American occupation there arose the erroneous idea, which

still exists to a certain extent at present, that the commercial woods of the Philippines are so scarce and are so scattered among a mass of "weed" trees that logging on a modern scale and the production of timber in large quantities are impracticable. Nothing could be further from the truth; for although it is true that it must be said of almost all of the finest cabinet woods that they are "widely distributed but nowhere abundant," it is equally true that about 70% of all Philippine timber belongs to the dipterocarp family, which is generally found in stands which are almost pure from the lumberman's point of view. The largest individuals of this family reach two hundred feet in height and some specimens have a diameter of seven feet. This family is by far the most important as it furnishes the main bulk of the timber cut in the Philippines. About a dozen botanically distinct species furnish probably 80% of the entire cut. From the standpoint of the lumberman, however, this number can be reduced to three groups, namely, the lauans, apitongs and yacals.

Tropic Climate Destructive of Woods

Climatic conditions in the tropics are such that wood, as a whole, is a much less durable material than in the temperate zones, and thus a wood which is regarded as of second or third rate in the tropics may give excellent service and show up high in the scale of comparison when exported to colder countries, where it is less exposed to insect attack and to decay. Before the advent of the Spaniards the people of the Philippines were familiar with the more durable kinds of wood and continued to use them for permanent construction, such as for houses, furniture, tool-handles and similar uses which required woods comparatively insect and weather proof. The Spaniards followed their example. Many of these woods, in fact a large proportion of the best species, grow scattered on the coast and lower mountains, while the woods found in immense quantities in the dense high forests of the interior are, generally speaking, of the lighter, softer and less durable kinds. In the old days these were looked down upon and were used only where cheapness and ease of working were of more importance than strength and durability. It probably never occurred to either the early Filipino or Spanish lumberman that such woods could ever form a valuable article of export. The largest trees of these abundant species were rarely felled except for the purpose of making dugout boats, due to the extreme difficulty they presented in logging and sawing without the mechanical equipment of to-day.

Since the American occupation the situation has changed radically, and practically all the forests of the Philippines have been explored and described, at least on a broad scale, while intensive studies and estimates have been made over many of those portions of the archipelago which promise to be most important from the lumberman's point of view. The stand of timber in the Philippines is roughly estimated to be 200 billion board feet, of which probably 140 billion board feet belong to the dipterocarp family mentioned above.

With certain notable exceptions the abundant timbers of the dipterocarp family are not very hard, nor under severe weather conditions very durable, but they form heavy stands over large areas, thus lending themselves readily to logging by steam. They possess beautiful coloring and being generally somewhat cross grained they have very commonly a "ribbon grain" similar to that of quarter sawn mahogany. Such quantities have been produced by the larger operators during the last ten years that they are now appreciably cheaper in the markets of the Philippines than in the Spanish days in spite of the fact that the popular estimate of their qualities and uses has enormously risen. On the other hand the very hard and durable woods for the finest construction purposes and for cabinet work have increased but little in quantity of output and bring prices but little lower and in some cases even higher than formerly.

Being abundant and easy to work the increased production of the lauans,—the most representative group of the dipterocarps (in fact the dipterocarp family is commonly referred to as the lauan family) has brought about an increasing demand and they have been used to a very large extent for general construction, interior finish and furniture, and have been exported in quantities very much in excess of those in which any Philippine woods had previously been shipped to foreign countries.

Classes of Philippine Woods

Taking the Philippine woods of importance for export as a whole we can consider them as falling into four main classes, the yacals, the apitongs, the lauans, and the woods belonging to the leguminosae or so-called "locust" family of the temperate zone.

Yacals.—This group comprises trees locally known as yacal, harig, mangachapuy, and dalingdingan. The timbers are hard and durable and are much more plentiful than the other very durable commercial woods of the Islands.

Apitongs.—The apitong group comprises timbers known as apitong, panao, hagachac, and guijo. The first three are marketed under the name of apitong. Guijo is generally considered somewhat superior. Well-seasoned timbers of this group weigh between 40 and 60 pounds per cubic foot.

Lauans.—It is in this group that the main wealth of the Philippine forests lies. It comprises timbers locally known as white lauan, red lauan, almon, bagtican, mayapis, tiaong, and tanguile. For the sake of simplicity, they may be divided into two classes, namely, the white and red lauans. Export grades of the red lauans are used in Europe and America as substitutes for mahogany, and are frequently sold as such. While not so hard and durable as mahogany, lauan has a beautiful grain and permits of a very fine polish.

The main bulk of the forests produce timbers of comparatively few kinds and in some instances approach pure stands of one or two grades. It is estimated on an average that 70 to 80 per cent of all the dipterocarp forests will yield timbers that belong to the groups described above.

Leguminosae.—Next in importance to the dipterocarp family are the leguminosae, or locust family, to which a number of the commercially important cabinet woods of the Philippines belong. Among the principal representatives of this family are narra, tindalo, ipil, supa, acle, and banuyo. No finer hardwoods are found anywhere in the world.

Stand.—The average stand in the virgin forests of the Philippines may be roughly estimated to run 6,000 board feet per acre and over. On some of the tracts now being worked under long-term license arrangements (or concessions as they are popularly called) the stands run between 15,000 and 35,000 board feet per acre. Stands of 45,000 to 60,000 board feet per acre are not infrequent, principally at elevations between 800 and 1,200 above sea level.

Export timbers fall roughly into four principal classes: Woods for interior finish and furniture, cabinet woods, woods for special uses, and heavy construction timbers.

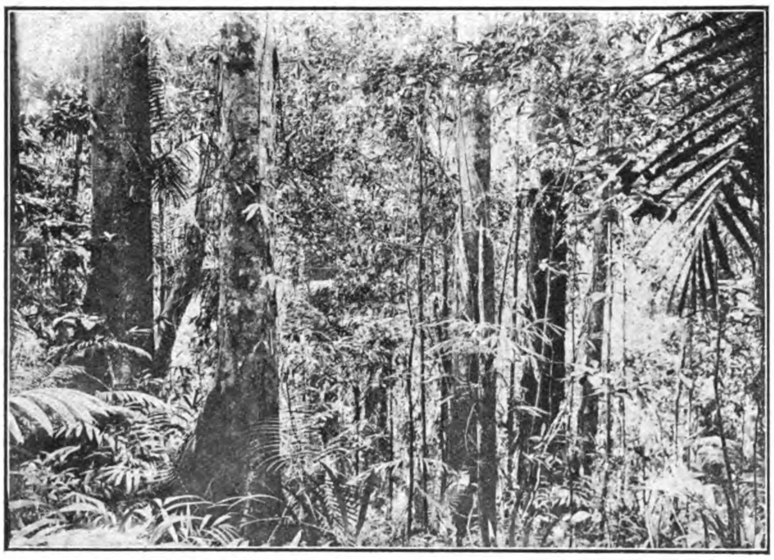
Interior Finish and Furniture Woods

The prime requisite of a wood for these purposes is that it be at least fairly abundant. Also, it must be not very difficult to work and to finish, of good size, and last, but not least, of pleasing texture and color. All of these requisites are fulfilled by the woods of the dipterocarp (lauan) family. This family occupies the place that the conifers do in the North Temperate Zone, but possesses a wider range of color, hardness, and other qualities. The lauan group of dipterocarps contains the greatest amount of timber especially fitted for interior finish and furniture. Tanguile, red lauan, and white lauan are obtainable in great quantities, have a fine ribbon grain when quarter-sawn, and in texture and color the first two resemble true mahogany and its substitutes very closely. White lauan differs from them only in color, being white with a very pale grayish-brown tint. It is pretty in natural finish where a light color is desired and, on the other hand, lends itself very well to staining. Almon, a very pale red lauan, is similar to white lauan as regards stains.

The other woods of the same family, gujio, apitong and yacal are also abundant. This fact and their greater hardness enable them to fill a demand for flooring in place of oak, red beech, maple, and other American woods which are yearly becoming scarcer. Guijo is light ashy brown to reddish brown

and apitong is somewhat darker. Finished with wax or varnish, they range from reddish brown to dark chocolate. Both are hard and of rather fine texture. If a very hard wood is desired for flooring, yacal, the hardest and heaviest of the dipterocarps and the most abundant of the hard, heavy, and durable woods in the Philippines, will find a place.

There are several woods of other families which, though not as abundant as the lauans, are still to be obtained in sufficient quantities to supply industries that do not require many millions of feet per year. Such are lumbayao, pagatpat, and nato.



A TYPICAL SCENE IN A PHILIPPINE DIPTEROCARP FOREST

Lumbayao is similar to red lauan in appearance, but is slightly harder and tougher and has a more conspicuous flake grain when quarter-sawn; nato is of similar color and texture, but of very homogeneous grain; pagatpat also is even-grained, but of a rich dark-brown color.

In the Philippines many other hard, durable, and beautifully colored woods are also frequently used for flooring and interior finish; for the export trade, however, these woods, on account of their beauty, comparative scarcity, and higher price, should rather be classified as cabinet woods.

Cabinet Woods

Of these the Philippines possess such an astonishing variety that it is difficult to give any idea of them in a short article. Foremost among this class on account of their large size, beautiful color, and grain and durability are the woods of the narra (or locust) family—acle, banuyo, ipil, narra, supa, and tindalo—all of which would delight the eye of every maker of fancy furniture and cabinetwork. A dining-room set, a piano, a billiard table, or any similar piece of furniture made from one of these, would attract attention at once no matter what comparison it might have to bear with other aristocrats of the lumber world. To attempt an enumeration of different classes of cabinetwork, naming for each one the various Philippine woods available would necessitate much unnecessary repetition. Perhaps the easiest way to give the cabinet-worker a notion of what he may demand (and obtain) for his purposes is an enumeration of some of the better-known woods roughly classified by colors: Black—ebony streaked or mottled with red; brown or gray—camagon, ata-ata, bolongeta (the Philippine persimmon); dark brown—dungon, ipil, mancono, pagatpat, pahutan; reddish brown—apitong, batete, betis, catmon, guijo, nato; red—amuguis, bansalaguin, calantas, nato, palomaria, sibukao, tabigi, tucangcalao; grayish-banawi, macaasim, tabao; yellow—alintatao, bancal, baticulin, malacadios; pale straw color, creamy or nearly white—kayutana, lanete, miao, white nato, molave. It must not be thought that the foregoing list is compiled with a view to color alone, any and every wood, good, bad, or indifferent, being dragged in to fill up; on the contrary, those named are all good woods, rarely attacked by boring insects, and not generally subject to discoloration except in the case of such light-colored woods as are easily stained by too slow or otherwise inefficient seasoning. In fact, the list could be doubled by including other woods used, on account of their varied color and grain, for musical instruments, fine cabinetwork, sculpture and carved articles, canes, hilts and sheaths for weapons, inlaid and mosaic work, desk and toilet novelties, picture frames, etc.

Special Uses

For bowling balls, bearings, stern shaft bearings, etc, mancono has been used successfully. For the first-named purpose, dungon has also been found good. Bansalaguin, alupag, malabayabas, and tiga, all of fine texture, difficult to split, and very heavy, are recommended for experiment. For such articles as dumb-bells, paper-weights, etc., requiring weight but not necessarily so fine and tough a texture, not only these, but a considerable number of other very hard and heavy woods are available.

For tool handles and other parts of tools, there are generally required woods that are either hard or tough or both. Chisel and hammer handles and mallets especially need to be hard, tough, and difficult to split; for these agoho, betis, calamansanay, dungon, guijo, malugay, palomaria, and yacal can be supplied; two of these, guijo and yacal, can be obtained in very large quantities, while the others occur in quantities sufficient to make tool handles, if not by millions, at least by thousands. Most of these, as well as many others equally hard or harder but not so tough, would supply turned and shaped handles such as grips and butt plates for braces and drills, plane and saw handles, plane bodies, scratch gages, scraper and drawknife handles, and hollow-tool handles.

For long agricultural tool handles, in which hardness is less essential than toughness and difficulty of splitting, guijo, the hardest grades of lumbayao, malugay, mangachapuy, and yacal

DRAGGING LOGS OUT OF THE PHILIPPINE FORESTS BY MAN-POWER. THESE METHODS ARE RAPIDLY YIELDING TO MODERN MACHINERY

would make excellent substitutes for ash. The same species, with the exception of lumbayao, would make good axe handles.

For wagon tongues and other vehicle stocks, hubs, spokes and felloes, an excellent material is found in guijo; it is not very heavy, but tough, difficult to split, and can be obtained in any size and quantity desired. Malugay, which is a little lighter, but equally tough, is not as abundant as guijo, but can still be supplied in fair quantities.

The cigar-box lumber *par excellence* of the world has for many years been the "Spanish cedar" of tropical America; in calantas is found a perfect substitute, so nearly identical in color, texture, and odor as to be almost indistinguishable. It is the only native wood used in Manila for high-grade cigar boxes. For cheaper boxes several of the lauans and nato are used.

Shuttles and spindles must be hard, rather tough, and resistant to abrasion. For these purposes a considerable supply of sapwood of the trees of the camagon (persimmon) tribe could be furnished. Calamansanay and malabayabas are also recommended for trial in shuttles.

Heavy Construction Timbers

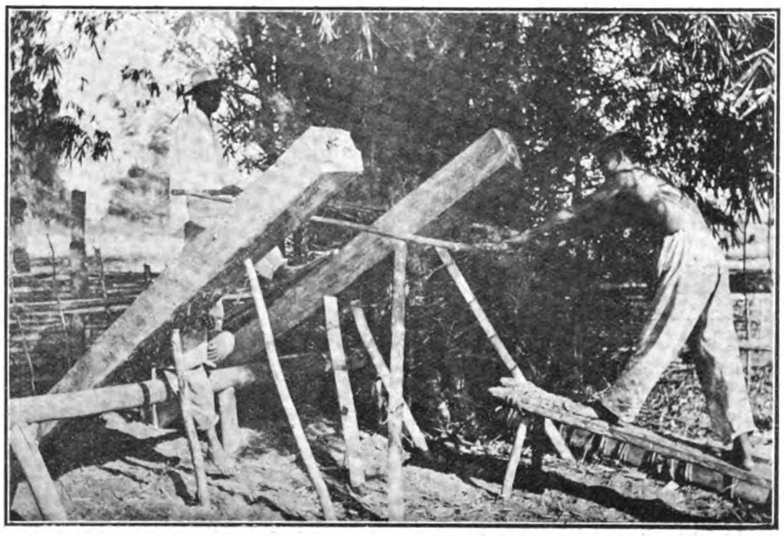
A number of large trees furnish hard, strong, and very durable construction timbers; and in this regard three species are worthy of special mention as furnishing magnificent posts or beams for all kinds of heavy structures, namely, yacal, pagatpat and ipil. Allied to heavy construction is the use of timber for railway ties, durability and strength being the two qualities required. For this last purpose not only the three species above named are available, but at least twenty others are found, which, although they are not large enough or are not found in sufficient number to yield a great supply of large timbers, still can furnish tie material. This statement refers, of course, to ties used without any preservative treatment. For treated ties, both the number of kinds and the supply available are much greater; practically all the lauans are very abundant and of great size and are probably susceptible to impregnation. They are about as strong as the medium-grade conifers, being less hard and heavy than Georgia pine, but somewhat stronger than the softest conifers. Beside the lauans, there are two harder woods available in great quantities, namely, guijo and apitong.

Obtaining a Tract of Timber

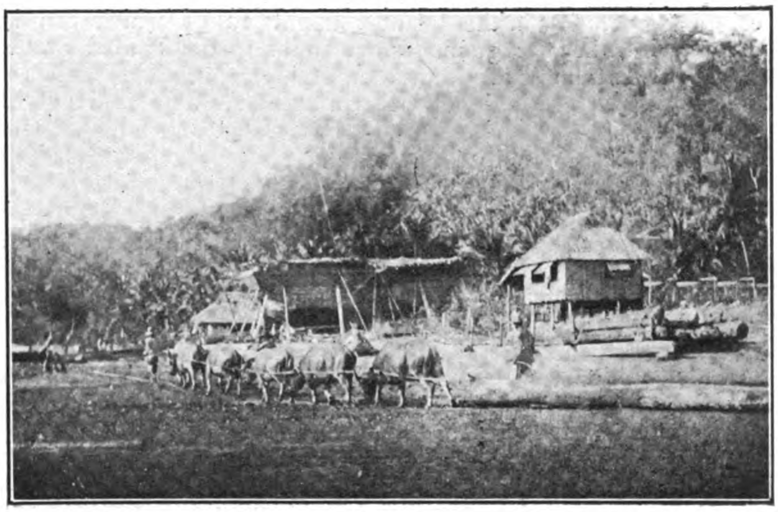
The public forests of the Philippines are not sold, but are developed under a license system. Small operators usually work under ordinary yearly licenses for definite small areas. Exclusive licenses, or concessions as they are popularly called, are generally in the form of a twenty-year exclusive license to cut and extract timber and other forest products from a specified tract. The land itself is in no way affected by such a license, merely the timber and minor forest products are included.

When a lumberman seriously considers an investment in the Philippines he himself or an experienced representative should state to the Director of Forestry approximately the extent of the investment he contemplates. He will then be given information about several tracts which promise to answer his needs, and arrangements can be made for an experienced forester to accompany him over the tracts in question so that he can size up conditions for himself. All maps, estimates, and other detailed information which may have been collected on the tract will, of course, be placed at his disposal, and he can count upon the heartiest governmental co-operation and assistance in making a success of his enterprise. It should be understood, however, that in no case does the Director of Forestry guarantee the correctness of the estimates or other data which he furnishes. These are given to the applicant for what they are worth, and in every case he is advised to take such steps as may be necessary to satisfy himself as to whether or not they are correct. If the lumberman then decides to apply for the concession, he makes a formal application in writing to the Director of Forestry for an exclusive twenty-year privilege for the tract he has selected. His application is then forwarded by the Director of Forestry with recommendations to the Secretary of the Interior, who may then approve the issuance of an exclusive license, if he decides that such a course is in the public interest. For an area of more than 1,000 hectares (approximately 2,500 acres) proposals for bids to secure the desired privilege are published in the Official Gazette and other papers. At least six weeks intervene between the appearance of the first advertisement and the opening of the bids, but in order to give interested parties in the Philippines ample time to correspond with their principals in Europe or America this period is usually extended to about four months. The advertisement states the amount of capital which must be invested within a given time, the minimum cut during the several succeeding years, together with certain requirements regarding logging and milling equipment, etc.

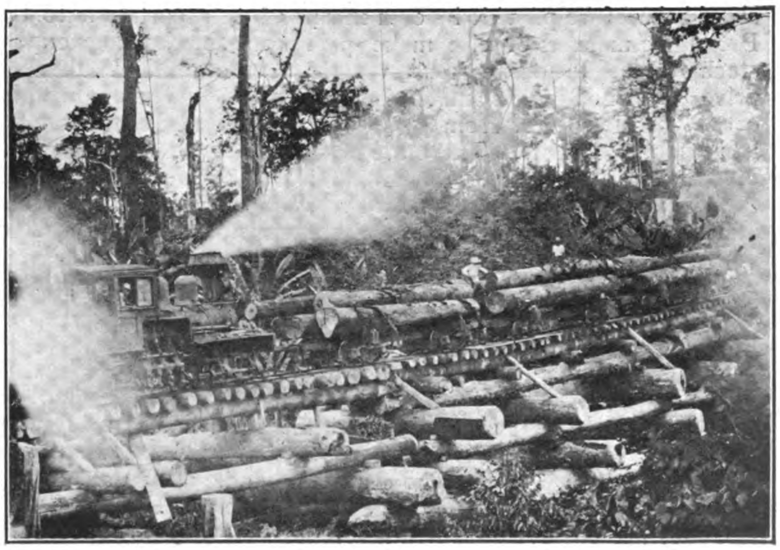
Formal bids are finally submitted and the license will be granted to the bidder who gives the best assurances of developing the tract most thoroughly and promptly. The right to reject any



FILIPINOS WHIP-SAWING LUMBER IN THE PHILIPPINES. A METHOD RAPIDLY YIELDING TO MODERN MACHINERY



HAULING LOGS BY CARABAO. THE FOLLOWING SHOWS HOW SUCH METHODS ARE BEING SUPERSEDED BY STEAM



STEAM LOGGING IN A TIMBER CONCESSION IN THE PHILIPPINES

and all bids is expressly reserved. The areas thus granted as concessions are generally of sufficient extent to permit operations for a considerably longer time than the period for which they are granted, and thus the logger and millman in making his investment may expect to operate not merely for twenty years, the limit expressed in his license agreement, but almost for an indefinite period. In fixing the annual production there is taken into consideration so far as possible the amount of overmature timber on the stand and the amount of annual increment, with the object of rendering the investment a permanent one instead of merely permitting the operator to strip and abandon the area he holds. In preparing regulations under which the operator is required to work, first care is given to the future condition of the area in order that the land after logging may be potentially as valuable as before, and no consideration of immediate profit is allowed to interfere. Nevertheless, the logger in the Philippines will find that in comparison with similar conditions elsewhere he will have few restrictions to contend with, and in practically no case are these such as seriously increase the cost of his operations. It is to permit such permanent use of the land that concessions are granted over such large areas, often consisting of 100 square miles or more. The Philippine Government sells its timber cheap—at half and less than half the stumpage prices asked for similar woods in neighbouring tropical countries. It costs nothing to secure a concession—evidence of good faith is all that is required. It may be mentioned that the stumpage is collected not in advance, but progressively as the timber is cut.

Sawmills

At present there are about 70 sawmills of all sizes and descriptions operating in the Islands, about 12 of which can be compared to the average modern sawmills in the United States. The largest sawmills are located on timber concessions, while the others are operated under short-term licenses. The total cut of the mills of the Philippine Islands is about 65 to 70 million board feet per year.

Transportation

The commercial forests are found either along the coasts where the timber can be skidded directly to the beach and loaded in suitable harbors, along navigable and floatable rivers where it is skidded directly to the water and floated or rafted down stream, or at a short distance inland where short logging railroads are advisable or necessary. For such timber as is close to the beach or large rivers, logging is easy and cheap, requiring but little capital. In these forests there are already a large number of operators, most of whom cut only small quantities of timber. The shipping of timber to the market from isolated sawmills in the Philippines involves considerable difficulty and expense and the lumberman who does not own his own interisland transportation is decidely handicapped. Few interisland steamers are adapted for carrying lumber, and freight rates are high and sometimes prohibitive. A company operating on a large scale should therefore provide its own means of transportation to the Philippine markets or else make provision for loading export stock direct to ocean-going vessels at the mill. With such privately owned interisland transportation the lumber ought to be carried to Manila for from $3.50 to $4.50 United States currency per 1,000 board feet. There are no export duties on timber or manufactured products. Sawmill and logging machinery from the United States can enter duty free, and timber and logs are admitted to the United States without customs charges. Any mill with a capacity of 1,000,000 feet or more per month of export material is in a position to ship directly to the United States, China, and other countries, thus saving the cost of transportation to Manila and reshipment.

Labor Conditions

The Filipino has a natural aptitude for running machinery and is easily taught. Given a good, experienced foreman it is surprising how well a Filipino crew can handle a sawmill. They work for small wages—from $0.25 to $0.75 United States currency per day for unskilled labor—and if they are accorded fair treatment they make steady and permanent workmen. In the thinly settled forest regions it is necessary to bring in labor from the more thickly settled provinces. To the lumberman the labor problem in the Philippines is not a difficult one. He will find that he has escaped many of the vexatious labor difficulties of the United States to meet comparatively few in the Philippine Islands. Patience and fair dealing will secure most excellent results.

Markets

Approximately 80 to 100 million board feet of lumber are used each year in the Philippine Islands. Of this, strange to say, a considerable amount is imported, although the amount of such imported lumber is steadily being lessened as the capacity of the Philippine mills increases. China, Japan, and Australia use yearly more than 200 million board feet of American lumber, a large part of which could be furnished by lumber companies in the Philippines if there were a sufficient number properly capitalized and equipped. A market for Philippine lumber has already been secured in the United States and to a lesser extent in Europe. As already stated, many Philippine timbers are unexcelled for interior finish, cabinet work, and other special uses for which imported woods are coming to be more and more demanded in the United States and Europe as the local supplies of hardwoods diminish.

In addition to lumber, the principal product of the forest, there are also found a great variety of so-called minor forest products many of which have a high and well recognized value in the markets of the world. Unfortunately the scope of a paper of this kind necessarily prevents more than a mention of the possibilities partially developed or latent in the forests of the Philippines. More detailed information as well as the names and addresses of the principal lumber dealers of the Philippines will be gladly furnished upon application to the Director of Forestry, Manila.

PHILIPPINE LUMBER EXPORTS

According to a circular just issued by the Bureau of Forestry the total revenue of the bureau on all forest products for the fiscal year 1914 amounted to P442,660 as compared with P390,664 for the year 1913. The export of lumber, timber and furniture increased while the imports decreased. The following official table contains a comparison of the imports and exports during the years 1913 and 1914.

EXPORTS

Fiscal year 1913 Amount	Value	Fiscal year 1914 Amount	Value
Timber 531 c. m. ..	P19,326	Timber 1,768 c. m.	P61,744
Lumber 4,293,000 ft. B.M.	429,628	Lumber 7,760,000 ft. B.M.	619,528
Furniture	24,790	Furniture	71,982
Total	P473,744	Total	P753,254

IMPORTS

	Fiscal year 1913 Value	Fiscal year 1914 Value
Railroad ties	P47,546	P5,424
Timber	55,564	122,866
Lumber	1,093,746	965,476
Furniture	251,406	185,886
All others	266,632	263,926
Total	P1,714,894	P1,543,578

Comparing these two years, the timber and lumber exported show an increase of 88% in volume and of 59% in value, while the value of forest products imported shows a decrease of nearly 10 per cent.

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CONTENTS

	Page
Geologic History of China	81
Japan and China, The Genesis of the Demands	86
Dr. Wellington Koo, Minister to Mexico	87
Philippine Woods for the China Market	88
Public Spirit in China	93
Civil Service in China	94
Fall of the Okuma Ministry	95
Industrial Exhibition at Peking	96
Question of an Exhibition of American Products	96
Anglo Chinese Engineers Association, Ltd.	98
Cotton in China	98
Need of an Inspectorate-General of Railways	98
China's Railway Accounts	99
Oil Resources of China	99
Land Taxation in China	99
Tsingtau Customs	100
Railway Construction and the War	100
Government in China—Agitation for Revival of Monarchy	102
Views of Dr. Goodnow on China's Government	103
Asphalt in Leyte, a New Philippine Oil Field	105
The Philippine Railway Company's Annual Report	107
The Railways of Chosen	109
Chinese Use Trans-America Telephone	117
Engineering and Financial Notes	119
Index to Advertisers	123

PUBLIC SPIRIT IN CHINA

President Yuan Shih-Kai on several occasions has issued Mandates somewhat similar in spirit to the famous exhortation to the British nation made by King George when Prince of Wales and which was condensed into the phrase "Wake up, England." In the latter case the nation was admonished not to permit slackness to allow commercial rivals to wrest the leadership from Great Britain. In China it is not a case of preventing the loss of laurels already won; the President's admonitions are intended to arouse the people to the grave reality of the peril that they may lose their national existence. He pointed this out when Japan forced China to sign the humiliating Sino-Japanese treaties in May last, and towards the end of July he repeated and re-emphasized his warning.

The President in this second warning directs attention to the neglect of discipline by the army, the irregularities in administrative affairs, the calamities of floods and drought throughout the provinces, the selfishness of some officials and the lack of public spirit among the people. In a picturesque phrase he says, "We are enjoying ourselves while reposing on a bed of straw with a kindling fire beneath it." He asks how many Chinese understand the real position of their country as compared with other nations. It was impossible to say that China was free from weakness, disorder and chaos and the Chinese should not be deluded into the belief that because China's territory and population were so vast they could not pass beneath alien rule. After the Sino-Japanese War and the Boxer Outbreak the people for the time realized the seriousness of their position, but they speedily forgot the lessons. During the recent Sino-Japanese negotiations the people showed that they realized that the country was in great peril, but this awakening would be useless unless it were permanent.

Having detailed the dangers and weaknesses, the President went on to urge that every individual Chinese should regard it as his sacred duty to avert the impending disaster of national extinction. It was not sufficient that the army could be relied upon to suppress banditti; it had to be made capable of meeting alien enemies if necessary. China should not be content with recovering the prosperity enjoyed under the late dynasty; the aim should be to develop the country by every possible means and to prepare for all emergencies.

That the President's warning is timely is beyond question, and there is a very grave danger of China losing her independence unless she demonstrates that she is genuinely intent upon reform. But there is no necessity for undue pessimism. A frank admission of shortcomings is the first step towards their correction. The President, very properly as he desired to arouse national spirit, laid great emphasis on the difficulties and dangers with which China is surrounded. It was no part of his duty, considering the object he had in view, to point out that an optimist might find good reasons for hope for China, but a commentator is justified in showing that the medal has two sides. Of course, unless China shows that she is sincere in her desire to reform, her ultimate fate is certain, but assuming, what we believe to be true, that she is really sincere and that all that is necessary is the organization of effort, there are one or two factors in the general situation that should inspire hope. The first is that there are at least two powerful and wealthy nations that desire above all things to see China preserve her independence. Of the good-will of Great Britain and of the United States of America China can have no doubt. These two countries wish to see the door of equal opportunity kept open in China and they would emphatically be greatly perturbed if any nation or a combination of nations sought to put a period to China's national existence. *In fact, as long as China showed that she was endeavouring to reform they would not permit China's independence to be wrested from her.* Self-interest as well as treaty obligations would compel them to unite to preserve China's independence. Those who doubt this contention may point to Korea. The original Anglo-Japanese treaty of alliance, it is true, recognised the independence of China and Korea, but it also recognised Japan's "special interests" in Korea. At no time had Korea been the subject of an agreement between several nations for the preservation of the open door.

In the second treaty of alliance signed in 1905 the reference to Korea's independence disappeared and Great Britain recognised the right of Japan to take measures of guidance, control and protection in Korea as she might deem proper. Thus, when Japan annexed Korea, the independence of Korea was *not* guaranteed by the Anglo-Japanese Alliance, but only by Japan, and few people ever harboured any illusion in regard to Japan's adherence to pledges. The independence of China is, however, guaranteed by the Anglo-Japanese Alliance and by the Root-Takahira agreement. The fact that Japan is associated with these two agreements would be a legitimate reason for fearing that China's independence was doomed, if their violation could be effected by Japan alone. But, while it is generally recognised that an undertaking given by Japan is not worth the paper it is written on, Great Britain and America would not permit her to violate her pledges. Japan received such a severe rebuff recently from these two countries when she began to nibble at these scraps of paper that she is not likely to endeavour to tear them up in the immediate future. China, therefore, has a powerful shield held before her by Great Britain and America, and she is thus secure from aggression for the time being. That is the most hopeful factor of the situation in which China finds herself.

Another circumstance that is distinctly hopeful, and to this the President refers, is the ebullition of national spirit when the drastic nature of Japan's outrageous demands became known. On other occasions Chinese patriotism has flamed out, notably when the Japanese Government insised upon an "expiatory salute" being fired because the Japanese flag was hauled down on a vessel caught in the act of gun-running. But these demonstrations were local in character and cannot be compared with the wave of resentment that passed over the whole country when it was realized that in deliberate disregard of her pledged word Japan was trying to reduce China to the status of a subjugated nation. The intensity and wide-spread character of this agitation, and the readiness with which Chinese of all classes contributed to the National Salvation Fund suggested the existence of a very real patriotism far transcending the provincial sentiment of the past. Kwangtung felt the humiliation as keenly as Chihli, and for the first time in recent history the Chinese showed that they were as keen to resent an affront to the nation as a whole as to their own particular province. This indication of the disappearance of localism and the substitution of a broad patriotism is significant and encouraging. To a country without patriotism nothing is possible; to a country imbued with patriotism nothing is impossible.

It has been shown that China is not friendless and her people possess the love of country that must supply the base upon which to build a regenerated nation. All that is required to achieve success is continued and organized effort. The will to improve is not sufficient; there must be constant and well-directed effort towards improvement. The President's exhortation is addressed principally to the officials. The suggestion seems to be that while the people are thoroughly patriotic the officials are corrupt and devote their time to self-seeking. That this is true of some officials is well known. Though there are honourable exceptions it is undeniable that among many of the official servants there is less regard for the interests of the country than for the interests of themselves or their faction. The existence of the evil being acknowledged the obvious thing is to see what has caused it to exist and to remove the cause. A thorough reorganization of the service, civil and military, should be undertaken. There can be no doubt that the officials recognize that they have no security of tenure, that they owe their appointments less to merit than to influence, and that when that influence ceases to be operative their occupation will probably be gone. Appointment to the Government service should be secured by merit alone; appointments should be made only by a body so constituted as to preclude any suggestion of influence being employed, and any man appointed should know that as long as he performs his duties properly he will retain his position. If reform in this direction were brought about it is certain that the officials would be as patriotic as any other class. This is one of the fundamental reforms that when accomplished will make others easy to effect. With a strong, patriotic body of officials stationed throughout the country, the work of directing the energies of the people as a whole into the channels of reform will be greatly facilitated. Leadership and initiative that cannot be expected from the official body as now constituted would be forthcoming, and the officials realizing that their first duty was to the country would strain every nerve to advance its interests and by so doing would inevitably better the condition of the people. The first and most important step towards reform would, therefore, seem to be the appointment of a full-powered and impartial Civil Service Commission.

THE CIVIL SERVICE IN CHINA

Point is given to the foregoing article entitled "Public Spirit in China" by a Presidential Mandate issued on August 5, some time after the article referred to was written. In this Mandate the President gives his views in regard to the conditions that prevail in the Civil Service in China. As the Mandate is of permanent interest we quote it textually.

> "When discussing the methods of administration with Tsu Chang, Confucius remarked; 'The ideal administrator is one who steadfastly holds to his post and performs his work with constancy and faithfulness.' If an official harbours the idea that he is to serve in his post for only a brief period (literally, five days) and looks forward impatiently to a change or promotion, then he will naturally neglect his duties, because he does not put enthusiasm into his work. Therefore, during the ancient Dynasty of Tang Yu, only the merits of an official of three years' standing were considered. In the Han Dynasty, the Magistrates who served a long term and rendered good service were given higher ranks and greater salaries as rewards. Changes of officials were rarely made. As a result, the districts acquired good customs and the people had respect for authority. Such a result was by no means an accident.
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> "At the beginning of the Republican Era, the official system was thrown into confusion. The officials were so excited that they could not calmly sit down to transact business. When a Minister or a Governor was changed, whole staffs of the organs were often dismissed and new persons were employed. This is a bad practice which causes delay and confusion of official business. In foreign countries, the office staffs were not affected by the change of the senior official. Therefore the members of the official organs can work calmly without being anxious about their positions. This peace of mind is a great asset; it prevents confusion in the administrative affairs even when Ministers are changed.
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> "I have instructed the Civil Service Bureau to amend the Law Regarding the Examination and Appointment of Civil Officials. Besides the shifting of officials serving in their native provinces, all other officials shall serve a definite period of time before they can be transferred or changed. The length of terms of office shall be definitely fixed so that the officials can serve long in their posts. This is done to show the importance attached by the Government to official duties. A man can only do a little in a day, but he can accomplish much in a year. If an official is given opportunity and time, he will certainly make good and do his duties in a satisfactory manner. Thus the country will have efficient administration."

The most important portion of the Mandate is the third paragraph. Civil servants are to serve a definite period of time in the capacity in which they are employed before they can be transferred. Though this period of time is not defined it is to be "long," which presumably means for a period sufficiently long to enable the officials to become qualified for higher posts. This is certainly a step in the right direction as security of tenure would undoubtedly favourably react upon the work of the officials. But an amendment of the law relating to the examination and appointment of civil officials, if it only affects the one object of giving security of tenure, will leave a great deal of what is absolutely essential unaccomplished. The Civil Service Bureau should be a competent body, utterly without party affiliations, armed with powers to see that the officials in Government employment are competent to perform the duties with which they are entrusted. A great number of men have pitchforked into positions for which they have no qualifications because the "spoils to the victor" policy has hitherto prevailed. When the officials now employed have certificates of competency it will be time enough to give them security of tenure. Obviously

if men are confirmed in positions before their competency to fill them has been established the effect of the new system will be to shut out men who may be fully trained and qualified while retaining the services of those who have no qualification other than a "pull" in useful quarters.

Perhaps it would be difficult to introduce the competitive examination system, as it is known in the West, in China, but some local adaptation should be possible. The system itself was for long identified with China's national life, though it was employed in ways that frequently resulted in the round peg being fitted—or misfitted—in the square hole. A system of some kind is clearly needed and, even without preparing elaborate machinery, it would seem to be the obvious duty of the Government to ascertain whether officials' services were worth retaining before confirming them in their posts.

THE FALL OF THE OKUMA MINISTRY.

The Japanese Ministry headed by Count Okuma found it necessary to resign office early in August, and was reconstructed after the lapse of a week. Count Okuma remains at the head of the Government, but the one "strong" man of the late combination, Baron Kato, Minister for Foreign Affairs, has been relegated to private life. And thereby hangs a tale which is told elsewhere in this issue by "Britannicus." Many readers of that extremely timely article will be irresistibly reminded of the title of one of Captain Marryat's books, "Japhet in Search of his Father." The disclosures made by "Britannicus," who is a well-informed and competent observer, gifted with a particularly unprejudiced mind, might well be entitled "Japan in Search of her Policy." The article was written some considerable time before the Okuma Ministry drifted on the rocks of resignation, and it speaks well for his prescience that "Britannicus" hints at the likelihood of such a development.

If the theory that "Britannicus" advances be accepted, the Okuma Ministry went out of office, not only because of the alleged corruption of one of its members, but also because it was an organization of politically myopic leaders, without the capacity to lead and without clear knowledge of the goal towards which the nation might most advantageously be led. The political leaders of Japan, with one exception, are represented as men with a profound ignorance of statecraft and with but the haziest idea of Japan's international obligations.

In effect, "Britannicus" says that, contrary to general belief, Japan is less knavish than foolish. He says that in that country, which claims a political and intellectual equality with Western Powers, the opinions of most of the politicians are based upon blissful ignorance of outside considerations, such as the feelings of China and the interests of other Powers. Whether the indifference that Japan showed in the recent negotiations to any interests but her own was solely due to ignorance, must be a matter of opinion, but the new light thrown on the situation by "Britannicus" makes clear a great deal of what was formerly obscure, and explains the recent downfall of the Okuma Ministry. The Ministry we learn fell because Baron Kato, trading on the ignorance of his colleagues, committed the Ministry to an adventure in which partial material success was discounted by complete moral defeat. It would seem almost impossible to believe that after over two decades of "representative government," politicians who are accustomed to hearing periodical debates on foreign affairs should be utterly ignorant of the duties Japan assumed by her treaties with other Powers. But respectful consideration should be given to the view "Britannicus" takes, namely that Count Okuma and Baron Kato's other colleagues never realized until it was too late that his policy towards China was fraught with considerable danger. The fact that Baron Kato's name does not appear among those who form the reconstructed Ministry is in itself confirmatory. The acceptance of this theory necessitates, of course, an extremely low estimate being held of the intelligence of Baron Kato's colleagues, one of whom (Mr. Ozaki) spent many years in England and is well known to be in the habit of keeping himself in touch with events abroad. It is a singular fact that the Peking correspondent of the New York "Sun," writing on May 21 last, made a semi-sarcastic suggestion that the Japanese Foreign Office was keeping the Premier ignorant of what was going on. Referring to the fact that Count Okuma had denied that Japan had ever asked for the appointment of advisers in China and that three weeks later the Japanese Government admitted that such a demand had been made four months previously, the correspondent said:—"The suggestion has been hazarded that the Japanese nation, departing from its traditional humility and lack of belief in its own inherent intellectual, moral, and material hegemony, has arrived at the opinion that the diplomatic and administrative methods of the West require improvement, and that a beginning has been made by keeping the Prime Minister entirely ignorant of the transactions of the Foreign office." That correspondent probably little thought when he made what was evidently intended to be a suggestion that carried inherent improbability on its face, that a well-qualified and competent observer should come to the conclusion that something of the sort should really have happened.

But if ignorance, which is not a valid plea for a defendant under British law, be held to excuse the Okuma Ministry for the arrogance shown towards China and the bad faith involved in misleading the Treaty Powers, what of Baron Kato himself? Here is the man who is considered the one strong and well-informed member of a Government deliberately seeking to commit Japan to what he knows to be violations of her treaty engagements. A man who had spent much of his life in diplomatic work abroad, and who must have had an intimate knowledge of the engagements that Japan had entered into with respect to China with Great Britain, with Germany, with Russia and with France, is shown by the disclosures to have formulated demands contrary both to the letter and spirit of those engagements. The spectacle presented is not a cheering one for any patriotic Japanese to contemplate—all the leaders of the nation crassly ignorant and incompetent except one, and that one possessed of mental attributes the exercise of which in social life leads to enforced seclusion.

The theory that Japan has no cut and dried policy in regard to China is probably correct. But there can be no excuse for ignorance on the part of men who are supposed to be qualified to act as rulers of the Japanese people, of the restrictions on whatever policy Japan may adopt imposed by the agreements that Japan has entered into of her own free-will. If Japan is to retain any sort of reputation for good faith she must confine her policy within the limits prescribed by her undertaking to maintain the independence of China and equal opportunity for all nations in China. Baron Kato formulated a policy that disregarded these limitations, and, though he has now been made the scapegoat, it is significant that the resentment of the country was not that Baron Kato had placed it in the position of a violator of pledges, but that its material interests had been jeopardized. "Britannicus" writes, "Japan is cross with the Government not because of the demands, but for getting the country into trouble," and we wrote in the June issue of the FAR EASTERN REVIEW: "Of course, it would be extremely unwise to assume that the indignation with the Government is due to an appreciation that Japan's actions in regard to China are morally indefensible. The failure to prevent the world from realizing that Japan was breaking her pledges entered into when she subscribed to the Anglo-Japanese Alliance was the real cause of complaint. The Japanese Government could break all the political commandments without fear of domestic criticism—if they were not found out." It is a source of satisfaction to find that this view of the agitation against the Government and particularly against Baron Kato, which some may have thought unduly cynical, is borne out by a writer who has evidently specially reliable sources of information.

But, granting that prior to the presentation of the twenty-one demands Japan had no formulated policy in reference to China, there is no reason to suppose that the formula prepared by Baron Kato did not accurately represent aspirations that had hitherto been inchoate and incoherent. In fact there is direct evidence that the formula was accepted by the Ministry

and the people of Japan, *after* they had become aware that the demands were incompatible with existing engagements. A study of dates proves this to be true. The full text of the demands was published in Europe and America in the middle of March. In the British and American newspapers articles at once appeared pointing out that the demands were incompatible with Japan's treaty engagements. The substance of these articles was telegraphed out to Japan and was published in the Japanese Press. However utterly the Government had failed to realize the significance of the demands when Baron Kato presented his formula for their approval, they must have attained full realization when the storm of disapproval from Great Britain and America broke over their heads. The elections were held in Japan on March 25 and the country overwhelmingly supported the Okuma Ministry in a policy the full significance of which neither the Government nor the people could, at that time, urge that they had failed to realize. Moreover it must not be forgotten that the agitation against Baron Kato in Japan was not solely due to disgust because he had estranged China's friendship and excited the suspicion of foreign Powers. Some of the severest criticism to which he was subjected was for his failure to compel China to accede to all the demands in Group Five.

It would be unwise and dangerous to assume, because Japan had not formulated her policy in regard to China into a platform of so many planks prior to Baron Kato coming to the rescue, that the demands presented on January 18 do not represent her aspirations. In fact we have just shown that after full realization of their significance the Okuma Ministry demanded, and the country enthusiastically gave, a mandate to carry through the programme. Baron Kato's colleagues and the Japanese nation with a full knowledge of the sentiment created in China and in other countries deliberately adopted his formula. It must, therefore, be accepted as a concrete policy, though we are of opinion that it is but a very faint expression of grandiose aspirations which will be formulated in the future if an opportunity should offer. Though Baron Kato has gone his policy remains and has been formally adopted by the Ministry and by the nation. What is that policy? Put in a nutshell it is the ultimate establishment of a protectorate over China, and in the meantime the extension of Japanese economic and political influence to the greatest extent possible. That policy conflicts with Japan's undertakings to preserve the *status quo*, and to maintain the independence of China and the principle of equal opportunity. But that would not deter Japan from adopting the policy that she thought most beneficial to her. Her action in regard to Korea showed that. Apart from the eventual annexation, in February, 1904, Japan entered in a treaty with Korea in which she guaranteed Korea's independence, but six months later she compelled Korea to agree to regulate her foreign policy in accordance with the advice of Japan, thus sweeping Korean independence out of existence. To argue that Japan will not attempt to pursue her policy in regard to China to its logical conclusion because it conflicts with her treaty engagements is to credit her with a respect for the sanctity of her word that experience does not justify.

The fact, therefore, has to be faced by China and the Treaty Powers that what might be called the preamble of Japan's policy towards China, has been definitely formulated and accepted by the Japanese nation. The countries whose interests are threatened should seize the first opportunity to take measures in unison to prevent the successful application of an individual formula to the destruction of the collective and international formula that has hitherto preserved the independence of China and given equal opportunity to all nations in the greater portion of the territory of the Republic.

INDUSTRIAL EXHIBITION IN PEKING

Although China has participated in many Exhibitions in other countries, in fact at the present time Chinese exhibits that have won numerous high awards are exciting much attention at the Panama Pacific Exposition at San Francisco, there has never been held in China itself a really comprehensive undertaking of the kind. The educational value of a national exhibition, and the stimulating effect that it would have upon industry and commerce was held in view when the Ministry for Agriculture and Commerce secured the approval of the President for the establishment of a Commercial and Industrial Commission. One of the divisions of the Commission is entrusted with the collection and effective display of national exhibits. With the collection of exhibits at present in the museum attached to the Ministry of Agriculture and Commerce as a nucleus, steps are being taken to secure additional specimens and samples of representative products and manufactures. The importance of making the collection genuinely national in character has been impressed upon the authorities of the various provinces, and it is believed that there will be a gratifying response.

Great interest has been manifested in the undertaking in Peking and the surrounding districts and already a good collection of local products has been received. It is hoped that it will be possible to open the Exhibition at the end of September or early in October. The Exhibition will be of value to the Chinese in supplying opportunities of comparison of methods and results, and will be of equal value to foreigners interested in the export trade.

THE QUESTION OF AN EXHIBITION OF AMERICAN PRODUCTS

The American enthusiasts who dream of seeing a vast and imposing commercial museum rise somewhere in China to entrance the Chinese nation with a wide display of American manufactures are doomed to disappointment if the American Asiatic Association has the deciding voice in the matter. The *Journal* of that Association, in its July issue, throws a decidedly chilly douche upon the project—which, apparently, has been revived by the Chamber of Commerce of the United States—and recounts with emphasis the objections raised in 1903 when the subject was referred to the Association by the State Department. In the main we are constrained to admit that the contentions of the Association deserve the closest consideration of any one tempted to commit the State to the establishment of such a costly institution as a properly equipped and conducted commercial museum would undoubtedly prove to be. But those contentions should not be accepted as final by any group of manufacturers interested in the development of the China market.

While there are perhaps reasons why the State could not successfully set its hand to the inauguration and management of such a scheme, there is no apparent reason why non-competitive manufacturers should not combine on an adequate scale to exhibit their products and provide for their sale. One experiment of the kind failed some sixteen years ago, when the effort of the American Manufacturers' Association succumbed as a result of bad management, but that surely should not be advanced—as it is advanced by the *Journal*—as a reason why no further attempt should be made to give an impetus by exhibition to the introduction of American manufactures. Sixteen years ago, measured by the strides forward that have been taken in the enlightenment of China, was an aeon ago. In that period much smoke has gone up the factory chimneys, much experience has been gained by many men of conditions in China, and, what is more to the point, China herself has expanded tremendously in vision, has broadened extraordinarily in knowledge of occidental methods, and has developed remarkably as a machinery using country. Sixteen years ago the Chinese people still fought against the introduction of railways; to-day they agitate for them. In sixteen years all conditions have materially and significantly changed, and that important fact should not be forgotten when mournful lachrymation is prompted by thoughtless reflection upon the unhappy failure of—sixteen years ago.

"With the remembrance of this fiasco still fresh in the minds of those most interested in the promotion of trade with China," says the *Journal of the American Asiatic Association*, "it seems hardly probable that the Chamber of Commerce of the United States will be able to elicit any hearty response to the appeal which it seems about to make on this subject."

Why? On the contrary the very remembrance of the distant date of that "fiasco," and the very fact that China is known as a market of tremendous potentialities, affording ample room for the enterprise of manufacturers of all nations, should, instead of deterring, compel progressive men to reconsider the situation in the light of modern conditions and inspire them to respond to any invitation the Chamber of Commerce may tender for discussion of proposals for the general public good. The *Journal* then goes on to say:

"Apart altogether from the possibility of securing the right kind of man to take charge of an American commercial museum in Shanghai, there is the question of whether under any possible superintendence such an institution could be made useful for the promotion of trade. When the subject was referred by the State Department to this Association in 1903, the following were indicated as fatal objections to the sample warehouse plan which had been revived in a bill introduced by Senator McCumber of North Dakota: To be of any serious value, the establishment must be equipped not only for the exhibition of samples but for the taking of orders for the merchandise which the samples represent. In short, the sample warehouse must enter into competition with the business of American citizens and the manager would himself have to become a merchant and importer. If it be assumed that the true sample warehouse, in a great commercial port like Shanghai, is not the place of business of the American importer and that a commercial museum could be placed in hands more energetic, resourceful and capable than those of the men in charge of the interests of established American houses, the question will recur: By what possible ingenuity could a warehouse in Shanghai equipped solely for the exhibition of samples of American manufactures be kept in daily touch with the constantly changing prices of the vast range of products which it would be expected to display? The cable tolls of a single mercantile house in Shanghai called for by the necessity of keeping pace with the movement in prices of commodities reach a sum in excess of the whole annual appropriation proposed for the maintenance of a sample warehouse. Twelve years have not robbed these objections of any of their cogency, and the Chamber of Commerce of the United States would do well to give them careful consideration before proceeding further with what its officers evidently regard as a highly promising scheme."

With these arguments, when they are applied to a State project, we are inclined heartily to agree, but we decline to admit that they will hold even so much as a drop of water when applied to an institution organized by a strong combination of manufacturers whose representatives would be on the ground to demonstrate the value of their wares and conclude contracts for their sales.

Apropos this subject it is interesting to recall one or two recent propositions of the kind that seem to have faded into thin air. On December 23, 1913, the Hon Mr. Pemerene, in the Senate of the United States, introduced a joint Resolution, (Calendar No. 144 S. J. Res. No. 94, Report No. 179) that the

"Secretary of Commerce is hereby authorised to investigate by a Commission of not more than three qualified persons, the conditions of trade with China for the purpose of determining upon ways and means for its expansion, and to particularly determine whether or not it would be desirable for the United States of America to establish and maintain there at some convenient centre, a permanent exposition of the products of the fields and industries of the United States on terms which might make the exposition self sustaining when established.

"That for the purpose of the aforesaid there is hereby appropiated and made available in the hands of said Secretary, from money otherwise unappropriated in the Treasury of the United States of America the sum of $20,000."

This was approved by the Senate Committee on Commerce, and was placed before the House Committee on Foreign Affairs under the designation of "House Joint Resolution No. 183."

Inspired by this evidence of the American Government's readiness to investigate conditions in China a Chinese, named Wong Ching—described as "Counsellor, Chinese National Party," of the Kwong Chee Library, Chicago, Illinois—backed by certain American citizens, submitted a scheme to the Chicago Office of the Department of Commerce, for the establishment of a United States Building at Shanghai to be called "The China Burlingame-Ward Memorial." The scheme was a decidedly ambitious one. The building was to commemorate the names of the Hon. Anson Burlingame, former U.S. Minister to China, and member of China's first Embassy to foreign countries

PROPOSED BURLINGAME-WARD MEMORIAL BUILDING
Planned to House United States Government Offices and Provide for Commercial Exhibit of Shanghai

in 1867, and General Frederick Townsend Ward, of Taiping Rebellion fame, two citizens of the United States, the originators of the project declared, "whose individual work, fundamental in its quality and abiding in the result, made the Republic of China a possibility." The proposed building was to cost $750,000 (U.S. currency), was to be erected upon a self-sustaining basis, and was designed to house the various Departments of the United States Government and to include space for a permanent exposition of the products of the fields and industries of the United States. (See illustration at top of page). It was to contain arcades and stores, lecture halls, bank quarters, safe deposit vaults, restaurants, library, Red Cross and Missionary quarters, club rooms, etc., as well. The space for exhibition purposes was to approximate 11,250 square feet and was to occupy the fifth, sixth, seventh and eighth stories of the building. From rent it was estimated that $85,000 (U.S. Currency) per year could be obtained, while the maintenance costs were itimised and estimated at $33,820 (U.S. Currency) for the building and $44,150 (U.S. Currency) for the Commercial scheme. The staff for this latter purpose was detailed as follows:

Commercial Director	$10,000
Assistant	5,000
Secretary	2,500
Disbursing Clerk	1,200
Director Building	1,200
Librarian	1,000
2 Assistants	1,000
2 Commercial Lecturers	1,000
4 Attendants	1,000
Chief Clerk, American	1,500
Chief Clerk, Chinese	750
Catalog Clerk	1,000
Trade Paper Account	1,000
Newspaper Account	2,500
Railroad Account	1,000
Steamship Account	1,000
2 Commercial Teachers	2,000
Information Clerk	500
Tariff Clerk	1,500
Interpreters, all languages	2,000
2 Chinese Interpreters	1,000
Postage	1,000
Stationery	1,000
Miscellaneous Account	2,500
	$44,150

This is the first scheme of the kind that we know of which has been gone into in detail, and though nothing materialised when the projectors were active it is quite likely that it will again come into prominence now that the Chamber of Commerce shows a disposition again to consider the question of exhibiting American wares in this part of the world.

Another project advanced by Americans was for a model city. Mr. W. J. Corry and ex-Governor Adams, of Alaska, in company with a wealthy Chinese merchant from New York, visited China, saw President Yuan Shih-kai, and endeavored to persuade the Government to grant a tract of land upon which to found a city on model lines in respect to every department of construction and administration. The central feature of the project was, of course, a permanent exhibition

of American products. The city was to be self-supporting, and to launch it a company was to be formed to provide the necessary capital. The idea was so utopian that even the Chinese, who have a weakness for and delight in dreams, failed to take any more than a passing interest in it, and from what we can see it has, like many another scheme of enthusiasts, been laid away in the limbo of forgotten things.

All these projects show, however, that there is a desire on the part of many Americans to see their country and its products more permanently and effectively established in this field. But so far no one seems to have hit upon a plan of procedure that will appeal to the manufacturer as eminently practicable. It is certain that the business men of America, who are famous for their hard-headedness, will not discard any proposal pregnant with success. On the other hand they are certain to jump at it, and in the absence of evidence of a definite movement to establish an exhibition in China we can only conclude that no feasible plan has yet been evolved, or, if one has been that no man carrying sufficient weight, has yet come forward to present it.

THE ANGLO-CHINESE ENGINEERS' ASSOCIATION, LTD.

A refreshing illustration of the fact that the Briton is capable of doing two or three things at the one time is furnished by the formation in England of a new Association of Manufacturers to seek openings in China for the products of their factories. Despite the abnormal disturbances caused by the great war, in which the British Empire is one of the most valiant participants, English industrial managements are able to think ahead and prepare for the day when peace shall prevail and workshops shall be making machinery instead of munitions. Not the lust of battle nor the wild helter-skelter rush of their mills to keep pace with the tremendous needs of the British armies apparently have the effect of clouding their viewpoint. Through the murk of battle they are able to see the possibilities of expansion in China, and to take advantage of those possibilities a number of them engaged in non-competitive production have grouped themselves and have organized a selling medium under the title of the Anglo-Chinese Engineers' Association, Ltd. This war-born organization will eventually fly the British flag in China and endeavour to gain conquests for British-made machinery. The field is a large one; there is room for them; and all admirers of sensible organized effort will applaud the appearance of a well-armed engineering Richmond entering the fray of the peaceful constructive arts, particularly as he emerges from the clamours of a destructive and bloody European strife.

The new Association has been organized by Mr. Arthur J. Moore Bennett, whose energetic and trenchant pen has long been employed in an effort to awaken the British people to the potentialities of the markets of China. In him the Association has an energetic manager, possessed of an intimate knowledge of a large part of China, as well as acute powers of observation, and a keen nose for markets. Hitherto he has striven to influence others to be up and doing, and his appearance in the ranks now looks as if, in desperation, he has decided to gird his loins and conduct a campaign himself. As the Lord helps those who help themselves we have no doubt that the new Association, when it is installed, will find the venture it is making highly profitable. China is bound to go on expanding, and those on the ground deserve all that their foresight and prudence enable them to garner as developments proceed. The London address of the new Association is 88 Fenchurch Street, E.C.

COTTON IN CHINA.

It has always been a matter for surprise that cotton cultivation and manufacture has not shown more progress in China. In many parts of the country the soil is eminently suitable for the cultivation of the cotton plant. The staple is very short, but this defect can be, and to some extent has been, remedied by the introduction of better seed. With her inexhaustible supply of cheap, but efficient, labour China should be able to grow and manufacture enough cotton to supply most if not all her requirements. This is far from being the case. In 1914 China imported cotton goods to the value of $267,388,500 Mexican currency.

The Commercial and Industrial Commission which was recently established by the Ministry of Agriculture and Commerce has issued a circular letter to the provincial authorities in Chihli pointing out the situation in regard to cotton and emphasizing the necessity of preventing so much money annually being sent out of the country. It was urgently necessary that means should be adopted to encourage cultivation and the establishment of mills. In order that an organized and systematic effort might be made to cause increased cultivation and manufacture, the Commission is obtaining specimens of the seeds used in the districts where cotton is cultivated and samples of cotton cloth manufactured in Chihli. A careful examination will be made of these and suggestions that will make for improvement given where required. It is hoped that, if in Chihli sufficient cotton can be grown and manufactured to meet local wants, the object lesson thus supplied will inspire the other provinces to adopt measures directed to a similar end.

NEED OF AN INSPECTORATE-GENERAL OF RAILWAYS

On August 12 President Yuan Shih-kai issued a Mandate in connexion with the administration, or mal-administration, of the Peking-Kalgan Railway which again emphasises the pressing necessity for thorough reform of railway management in China. The railway system of the Republic is expanding to such an extent that serious attention must be given at an early date to the introduction of measures calculated not only to remove the conditions which provoked the Presidential wrath, but for all time to allay any anxiety that might be generated in the minds of foreign bond-holders by reports of faulty control or the misconduct of responsible railway officials. The only measures so far adopted to cope with the mishandling of finances, and at the same time to inaugurate some definite book-keeping system, are those embraced in the scheme for the unification of accounts. Splendid as this advance is it is not sufficient. What is needed is the creation of an Inspectorate-General of Railways, the duties of which will be the general management of all of the State lines now in operation or in course of construction. China has no adequate central instrument for the efficient development and administration of what should be her greatest earning factors, and the time is rapidly approaching when she will be compelled by outside influences to create such an organization as that suggested if she does not of her own volition do so. A wise government would set to work at once to engage from abroad experts in railway control; men who have proved their competence; who would come to China as servants of the Chinese Government; who would work under the Minister of Communications for the economic development of the railways, and who would be proud to reorganize and elevate the system to the plane which it should occupy. The lines are now notorious for their lack of homogeneity in management, though it must be said efforts have been made by foreign officials, with some little success, to co-ordinate essentials. However, the question still remains one of the most important confronting China, and there seems to be no other method of dealing with it than to appoint a specially equipped Inspectorate-General with adequate powers of administration.

CHINA'S RAILWAY ACCOUNTS

Dr. Adams, the American expert engaged by China to organize a unified system of accounting for railway purposes, has returned to Peking to continue the excellent work which he and the Commission appointed for the purpose inaugurated

last year. The conferences held when Dr. Ad ms was last in China resulted in the adoption of rules for the classification of capital expenditures; for the treatment of new lines and extensions and of additions and betterments; for the classification of operating revenues; for the classification of operating expenses of railways; for the income, profit and loss and the surplus appropriation accounts, and for the classification of the general balance sheet accounts of railways. The work now to be undertaken will be the unification of station store accounts, which is designed to prevent what is commonly known in China as "squeezing," and the preparation of a system for annual scientific statistics. With the completion of the work now contemplated China should have the most thorough railway accounting system in the world. All that is needed to make it effective is consistent enforcement of the system by the Government, and it is to be hoped that the wisdom of persistency in that regard will be realised by the Government.

THE OIL RESOURCES OF CHINA

Hopes were entertained that the negotiations which were carried on in Peking for some months between the Chinese Government and the Standard Oil Company would reach finality early in August. This expectation, unfortunately, has not been fulfilled, and there seems to be little likelihood of any agreement being reached in the immediate future.

The negotiations were based upon an agreement* signed on February 10, 1914, between the Republic of China and the Standard Oil Company for the exploitation of oil fields in Shensi and Chihli. In accordance with this agreement the Company was to send experts to make a thorough investigation of the Yenchang, Yenanfu and adjoining fields in Shensi and the Chengtehfu and adjoining fields in Chihli, the cost to be borne by the Company and the Government jointly. If these investigations showed that the fields could be worked with advantage, an American-Chinese Corporation was to be formed. The capitalization was to be 55 per cent. Standard Oil Company and 37½ per cent. Chinese Government, the 37½ being payment by the American-Chinese Corporation for the franchise. The Chinese Government was also to have the option of purchasing the remaining 7½ per cent. of the capital stock at par within two years of the formation of the Corporation. The Government agreed that the working of petroleum in the fields named should be exclusively entrusted to the American-Chinese Corporation to develop, refine and market for sixty years. If the fields examined proved to be worthless, other districts might be exploited. A clause provided that a royalty not exceeding 1.5 per cent of the value of crude petroleum at the place of production should be paid to the Government. For one year after the signing of the agreement no concession of petroleum-bearing properties in any part of China was to be given to foreigners.

A party of experts and the necessary machinery were sent from America, and after delays from various causes a thorough examination was made of the oil-bearing districts in Chihli and Shensi.

The agreement between the Chinese Government and the Standard Oil Company expired on February 10, 1915, but, as arrangements for the formation of the American-Chinese Corporation had not been made at that date, the Chinese Government has from time to time extended the agreement. Latterly the negotiations have been conducted on behalf of the Standard Oil Company by Mr. W. E. Bemis, one of the Vice-Presidents of the Company. Agreement was found to be difficult with regard to several points in a new proposal made by the Standard Oil Company. Proposals for refining and marketing were unacceptable to the Chinese Government as they deemed them to be a departure from the original agreement, and to be in the nature of a monopoly, and accordingly counter-proposals were made. These, in their turn, did not prove acceptable to the Standard Oil Company and, for a time at all events, a deadlock has been reached.

It will be sincerely hoped that some satisfactory solution of the difficulty will be found possible. At the present time it is all important that no opportunity should be lost of developing China's resources, and the fact that the Standard Oil Company was willing to enter upon the negotiations may be accepted as a proof that the investigations that have been made showed that the Shensi fields at least are worth exploitation. In the interests of all concerned it is to be hoped that it may be found possible to proceed with the development of these fields, as the benefit accruing would be shared by the whole country and not solely by the districts immediately concerned.

* This agreement was published in full in the February, 1914, issue of the FAR EASTERN REVIEW.

LAND TAXATION IN CHINA

Some little time ago we briefly described the measures that were being taken to reform the system of land taxation in China. While the necessary investigations will take a considerable time and general reform will be a matter for the future, some steps have already been taken that will have the effect of increasing the revenue from this source. Immediately after the Revolution the land tax machinery was working very badly. The provincial authorities in many instances collected the revenue on their own account, and in some cases the tax was decreased or abolished. As soon as the Central Government were in a position to do so they restored all the customary levies and charges and instructions were issued that the land tax should be collected in silver coins instead of taels or cash. The practice that had formerly prevailed of permitting the provincial authorities to deduct from the amount raised the cost of collection was abandoned. In many instances the cost of collection was out of all proportion to the total amount raised, consequently the provincial authorities were directed to meet this cost out of other provincial revenue.

As a result of these measures the Ministry of Finance in 1914 received an appreciable sum from land taxation. Some provinces remitted over $1,500,000 more than had been received the previous year, and the saving in the cost of collection, which was added to the national revenue, was about $2,000,000. When the survey that is now being undertaken is completed it is expected that the revenue will be greatly increased. Until a proper survey has been made it will be impossible for the Government to put into force uniform regulations, and consequently collections will continue to be made at the varying rates that at present prevail. An equitable system of grading lands and the adoption of uniform rates of taxation are expected to result in doubling the revenue from this source. Moreover the survey will result in revenue being derived from much land that now escapes taxation. Previous surveys were very carelessly made, and the landowners were frequently able by corrupting the officials entirely to escape taxation. Even when the land had been surveyed with approximate correctness the owner was often able to evade the tax. So much corruption prevailed that wealthy landowners were able to induce the tax-collectors to leave them unmolested and to endeavour to make up the deficiency in the revenue by extorting a double tax from those who were too poor to obtain exemption by bribery. While it is impossible to ascertain with any degree of exactitude the extent to which this practice was carried on, it is certain that it was widely prevalent in the past and that there was much consequent loss of revenue.

With proper organization and honest administration it should be possible to obtain from the land tax a revenue equal to the total revenue from all sources now obtained by the Central Government. The estimated revenue from the land tax in 1913 was about 82 million dollars, about a quarter of the total estimated revenue. The land under cultivation in China was estimated in 1905 to amount to 650,000 square miles or about 400,000,000 acres. Taking the revenue at $82,000,000 the tax is twenty cents Mexican currency per acre. Of course the productive capacity of the land varies greatly in different parts of the country and its value is affected by facilities for

transportation of produce and so forth. These differences would preclude the imposition of a uniform tax, but the assumption that the landowners could bear a tax that would average $1 per acre seems to be justified. Direct taxes are always unpopular, but as China is debarred from increasing her Customs duties she has no alternative. A tax that averaged $1 per acre would probably not be found oppressive if the original valuation of land were fairly made and nothing beyond the assessed tax extorted by the collectors. However, to render the tax acceptable to those who pay it, the Government will have to exhibit a willingness to recognise its obligations to a greater extent than in the past. Taxes are levied to provide the Government with the funds necessary to give security to life and property, and to carry on the administration of the country for the benefit of the people. The landowners would pay their share more contentedly if they knew that their lives and property were thereby given proper protection and if roads, railways and canals were constructed or extended to afford them greater facilities for marketing their produce. The Republican Government have succeeded in restoring order throughout the country and may be said to be thus fulfilling the primary duty of every Government. Reasonable security for life and property has been afforded. As the revenue grows so should the efforts of the Government to improve the transportation facilities increase. Expenditure of part of its revenue in this way will be not only beneficial to the landowners but will increase the capital value of the land and, as periodical revaluations will undoubtedly be made, the future revenue will also increase. There is reason to suppose that the Government are fully seized of these facts, and that increased revenue from land taxation so far from causing an additional burden to be laid on the people will result in an appreciable improvement of their condition.

THE TSINGTAU CUSTOMS

The negotiations in regard to the control of the Chinese Maritime Customs Office at Tsingtau have terminated in a manner more satisfactory than was expected. It will be remembered that when Kiaochou was surrendered the Japanese Military Authorities took over the civil administration at Tsingtau and also the Maritime Customs Office. The original agreement for the establishment of a Maritime Customs Office at Tsingtau was signed at Peking in 1899 by Sir Robert Hart, then Inspector-General of Customs, and the German Minister. This agreement provided that the Customs Commissioner at Tsingtau and the members of the European staff of the Customs Office should be of German nationality. An amendment of this agreement was signed in 1905 by which the Chinese Government agreed to hand over to the German officials at Tsingtau 20 per cent of the net import duties collected as its contribution to the expenses of the territory.

Relying upon the repeated assurances of the Japanese Government that the territory of Kiaochou was to be handed back to China, as soon as things settled down in the port, China notified Japan that she proposed to appoint a Customs Commissioner at Tsingtau, the gentleman selected being the British Commissioner at Mukden. To this Japan at once entered an objection. China then nominated the Japanese Commissioner at Soochow for the post, with a British Deputy Commissioner, but Japan again objected. With a sincere desire to meet Japan's wishes China was prepared to eliminate the British Deputy Commissioner, but this proposal was rejected. Finally China nominated Mr. Tachibana, the Commissioner at Dairen, to the post at Tsingtau. This was regarded as unsatisfactory by Japan and the counter-proposal was made that Japan should appoint the Commissioner and staff from the Japanese Customs Service. It was, of course, impossible for China to agree to this remarkable proposal as it would have involved permitting a foreign Power unwarrantably to interfere with her domestic administration, and would have meant the injection into China's Customs Service of foreign officials who in many cases would have taken precedence over men who had served China long and faithfully. To overcome the difficulty China suggested that Mr. Tachibana should be appointed Commissioner and that eight members of the Imperial Japanese Customs Department should be permitted to join the Chinese Customs Service in the lowest grade. This further concession was rejected by Japan.

The negotiations dragged on throughout December, 1914, but in January the notorious twenty-one demands swept smaller questions into oblivion. The Tsingtau Customs matter was not taken up again until July, but in the interval Japan appears to have recognised the wisdom of moderation. On August 5 an agreement was signed by Mr. Aglen, Inspector-General of Customs, and Mr. Hioki, Japanese Minister in Peking, which provides:—First, that the Chinese Maritime Customs shall resume its functions at Tsingtau; secondly, that business shall be conducted, pending a settlement of Tsingtau affairs after the war, in accordance with the arrangements made with Germany, except that Japanese officials shall be employed instead of Germans; thirdly, that the Japanese military government shall hand over the Customs property, archives, and funds, etc., acquired at the time of the occupation of Tsingtau, and fourthly, that the Japanese military government shall hand over the revenue collected since the occupation, less the proportion due to the local government in accordance with the arrangement made with Germany.

There is also an arrangement for increased Japanese representation in Customs Service.

This settlement of a question in which highly important considerations were involved will be welcome. If Japan had persisted in her original demands she would have found it difficult to defend her action. The Chinese Maritime Customs Service, though largely officered by foreigners, is a portion of China's domestic administrative machinery. The nomination of officials to posts is a prerogative of the Inspector-General, who is responsible to the Chinese Government, and it would obviously lead to the utter disorganization and demoralization of the service if foreign Powers were permitted to control his actions. The service of much of China's indebtedness is provided by the Customs revenue, and the Powers interested would be greatly perturbed if control of the Customs service were to be regarded as a prize of war. It is understood that Japan is dissatisfied with the amount of representation given to her in the Maritime Customs Service, and that she considers that as she is second in the China trade she should supply a larger proportion of officials. The argument is specious enough, but Japan should not forget that any proportion of officials to trade must be very rough and ready and should certainly not be based upon results of martial operations. If Japan were engaged in a war with a great naval Power and the Japanese flag was swept from the seas, would she contend that as her trade with China had ceased all Japanese officials in the Chinese Customs should be dismissed? It would be most highly regrettable if the Chinese Maritime Customs Service were to become a plaything in international politics, and Mr. Aglen is to be congratulated upon preventing the recognition of a principle the adoption of which would certainly lead to disaster.

RAILWAY CONSTRUCTION AND THE WAR

One of the results of the European war is the practically complete stoppage of all railway construction in China. Dependent as they are upon foreign loans for this important work the Chinese Government are unable to proceed with the internal development of the country unless the foreign financial markets are open to them, and the result of the upheaval in Europe is that China must stand still so far as railway expansion is concerned until long after peace is established. America can and may step into the field, but for some reason difficult to explain the capitalists of that country have never evinced any particularly keen desire to participate in the great developments proceeding in China. There are opportunities for them now, and judicious procedure might easily land for them a line or two which Continental powers now heavily involved in war might be only too glad to hand over.

At present the work on the Pukow-Sinyang railway, being financed by the British, is being closed down. The whole of

this route—some 250 miles—has been surveyed, the plans have been completed, and nine miles of earthwork have been constructed. Unhappily the loan for the construction of the line was not floated before the war began, and the work so far done has been carried out upon advances made by the British and Chinese Corporation.

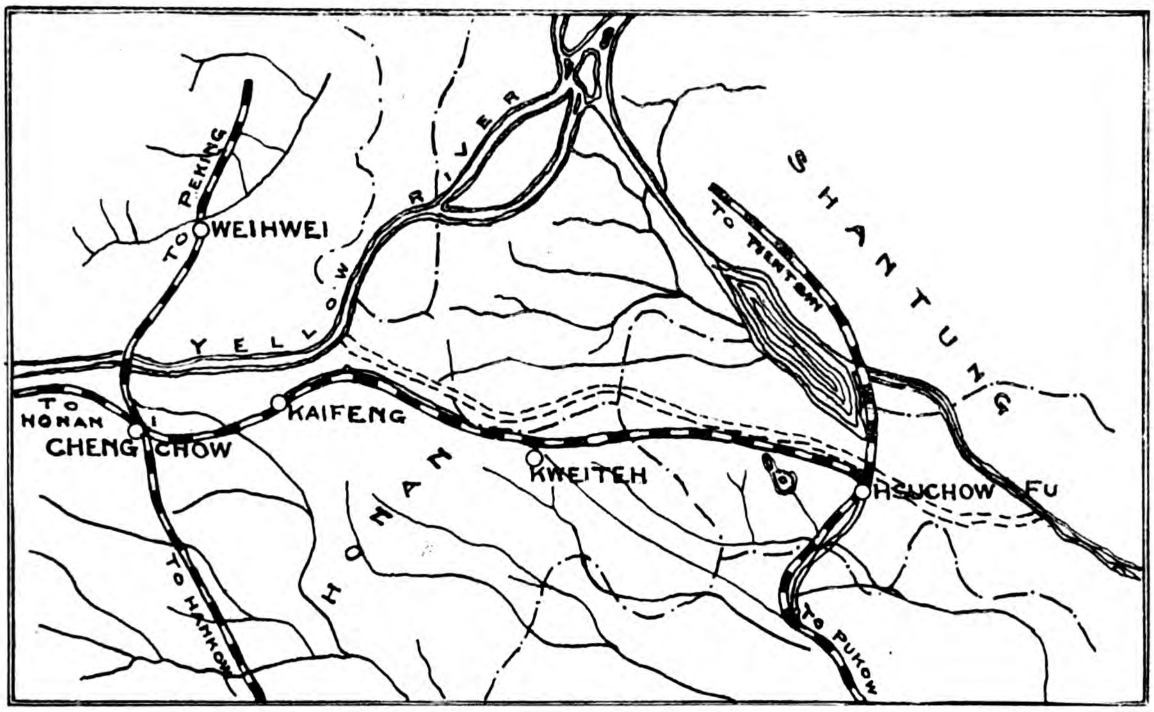
The survey of the projected railway between Nanking and Pinghsiang is being continued but when completed about June next, operations will cease unless conditions have materially changed and money is available.

On the railway under construction between Lanchow and the sea, work is being carried on in a desultory manner upon finances derived by a local Chinese loan. The section connecting Kiafeng and Hsuchowfu, on the Tientsin-Pukow Railway, has been practically completed and traffic is now being carried upon it, and the Managing-Director of the line is making brave efforts to have work to the west of Honan continued despite the war.

wagons being of the type used on the Peking-Hankow railway. Workshops are situated at Chinchow and Hsuchowfu. Construction was begun in the spring of 1914 and was finished in June of 1915.

The Pukow-Sinyang Railway

As mentioned above, work on the Pukow-Sinyang Railway has been temporarily suspended, though an effort was made to finance continued construction by floating a loan in China. Negotiations between the British and Chinese Corporation, Ltd., the concessionaires for the railway, and the Government resulted in no agreement being arrived at on the subject and it was dropped. It was suggested by the financiers that a silver loan of some $12,000,000 should be raised in China, the original sterling advances made by the financiers to carry out the survey, etc., totalling some £200,000, also to be converted into silver; the whole to be redeemed at a later period by a Gold loan to be floated to complete the construction and equipment of the railway.



THE NEWLY CONSTRUCTED RAILWAY FROM KAIFENG TO HSUCHOWFU

On the Shasi-Shingyifu line, a portion of which has been surveyed, work has been definitely suspended until after the war; and on the lines from Tatung to Chengtu, and from Yamchow to Yunnan and Chungking, nothing has yet been attempted, and cannot now be attempted until the financial sky materially clears.

Operations are still continuing on the extension of the railway from Kalgan to the Yellow River, via Tatung. The money now being used was derived from a local loan, but it will be insufficient to carry construction work far, and a stoppage will have to be made unless further funds can be raised.

The Kaifeng-Hsuchowfu Line

As mentioned above the connexion has been made between Kaifeng and Hsuchowfu, thus creating a link between the Peking-Hankow and the Tientsin-Pukow railways. The route follows the embankment of the old bed of the Yellow River over a total distance of about 200 miles, and is free from any engineering difficulties whatever. In fact it is almost perfectly level. The total waterway on the line is 4055 metres, comprising 89 steel bridges, of a total of 3315 metres, and 5260 culverts measuring a total of 740 metres. The gauge is the standard; the rails are 85lb Hanyang steel; and the sleepers are partly Belgian steel and Japanese timber. There are ten stations on the line, and ten flag-stations. The locomotives, of which there are six, are of French and Belgian pattern, the cars and

China objected to a suggestion that the silver loan should be redeemed as soon as a gold loan should be raised in the future, though she expressed readiness, we understand, to redeem the silver loan in a specific number of years. China appears to have balked at the double discount that would come to the Banks as a result of the manoeuvre, it having been proposed that the silver loan should be issued at a discount and be redeemed at par upon the issue of the gold loan. As an alternative China suggested that a silver loan should be issued as part of the sum called for in gold in the original agreement, the term of the silver loan to be forty years, and the security to be similar to that called for in the original agreement with interest at 6 per cent., while the discount suggested by the financiers was accepted by China. The parties could come to no agreement on the question, and it was ultimately decided to suspend operations.

CHINESE EASTERN RAILWAY CAR SHORTAGE

The dearth of goods cars along the Chinese Eastern Railways continues, most of them being requisitioned by the Government to convey supplies from Vladivostok to Western Russian bases. These return with wheat, etc., which is being shipped to France. Many local importers, who have been waiting in vain for goods due at Vladivostok from Harbin, are now having them re-shipped by steamer to Dairen and from the Japanese port by sail to Harbin.

GOVERNMENT IN CHINA

Nascent Agitation for a Revival of Monarchy in China

The question of the form of government most likely to give the best results in China, has again become a subject of public discussion. Particular attention has been directed to the question by the establishment of a "Society of Peace" in Peking, which has openly pronounced in favour of a reversion to the monarchical form of government.

In considering a problem of this nature care has to be taken not to confound theory and actuality. From a purely academic standpoint it would be difficult to controvert the assertion that the republican system of government is superior to the monarchical. Theoretically, under the former system every citizen is given an effective voice in the management of national affairs. As the government is created by the citizens it is in theory an inferior body employed to carry out delegated duties. The same power that created it could at any time destroy it. In an ideal republic the citizen would be supreme. In practice it is doubtful whether the average citizen in a republic enjoys a larger voice in national affairs than the average subject of a constitutional monarch. In many instances the citizen has less opportunity of making his voice heard than the subject.

Under any form of government the actual power is wielded by a few individuals. To the practical man it makes very little difference whether these men are appointed by a monarch holding his position by hereditary right or by a president who owes his elevation to the fact that a plurality of the citizens consider him the man best qualified for the position. In each case, assuming government to be conducted on constitutional lines, the monarch and the president exercise but little personal power. They are both part of the respective governments, but in neither case are they *the* government. The government, whatever the appellation of its titular head, is composed of units that have no hereditary rights to their positions. This is true even of countries where there is a second chamber of hereditary nobles. Consequently, as a matter of fact the subject of a constitutional monarch has as much voice in national matters as the citizen of a republic, as he helps to choose those who exercise the government functions.

It is impossible in a consideration of this kind to form general conclusions from a study of particular cases. The United States of America have attained power and wealth under a republican form of Government. The British Empire has attained power and wealth under the system of constitutional monarchy. It is possible that the United States would have made as much progress under a monarchy, and that the British Empire would have become no less powerful and wealthy under a republican system. These two countries are taken as examples because they employ the same language and are the two nations that have for the longest time continuously adhered to the form of government that still prevails. The government of the United States of America has been republican since it was established; that of Great Britain has been a limited monarchy since the time of King John, with a brief interregnum of fourteen or fifteen years. France has alternated between autocracy and republicanism. As we have said, it is impossible to declare from the study of the progress of particular nations that republicanism is demonstrably a better form of government than monarchy.

Clarity of definition is all-important in an inquiry of this kind. What is meant by "the best form of government"? We take it that the best form of government is that under which the life, the liberty and the property of the individual are the best protected. Evidently it is necessary to know in what consists the fundamental duty of government, before it becomes possible to argue that one form is better than another. Granting that the protection of life and property and preservation of liberty are the primary objects for which governments exist, what does history teach of the respective ability of republicanism and monarchy to secure these ends. The candid must admit that, other things being equal, the duties can be performed as well under the one as the other. Possession of life, liberty and property is as assured in the United States of America as in the British Empire. The citizen of the one is as safe and as free (but not more safe or more free,) as the subject of the other.

The comparison made is between two states which have used moderation in the practical application of their political ideals. In countries in which more extreme views have determined the form of government the evidence points to life and property and even liberty being better safeguarded under a monarchical than a republican government. In Russia for example there is much greater security than in Mexico. Theoretically the Mexicans enjoy greater liberty than the Russians, actually they have much less. There is no protection given them by their courts; their property is liable to be commandeered; their liberties and even their lives are held on a precarious tenure. Every Mexican has a theoretical opportunity of becoming chief magistrate of his country, and the result has been that every aspiring individual who could gather a following sought to seize the position by force. In Russia the post of chief magistrate is by law vested in one family and for centuries there has been no attempt to change the dynastic succession. What is happening to-day in Mexico has happened in the past in Guatemala, Venezuela, Peru, the Argentine Republic and other Spanish-American states. It might then be argued that there is at all events a better prospect of domestic tranquillity in countries in which a monarchical system of government obtains. Dynastic struggles have become practically unknown.

The nascent agitation for a revival of monarchy in China is attributed to some statements said to have been made by Professor Frank J. Goodnow, Constitutional Adviser to the President. Dr. Goodnow was said to have stated that "a monarchical system of government is better than a republican system." The Society of Peace, to which reference has already been made, taking this alleged statement as its text, issued a manifesto on August 16. In this it was declared that the republican form of government was adopted in China without its suitability for the people being carefully weighed.

The civil disturbances in Mexico and other Spanish-American states and in Portugal since the revolution were referred to, and the people were advised to look upon Mexico as an object lesson. Though not distinctly so expressing it, the manifesto leaves it to be inferred that the Society of Peace desires to see the re-establishment of monarchy in China. The following day the *Asia Jih Pao*, a vernacular paper of some standing, published the following alleged statement by His Excellency the President:—

> "The proposals made by the said Association do not attract much of my attention, as statements of this nature have been in circulation long before the organization of what is called the Society of Peace.
>
> "It may be said that since the outbreak of the war in Europe, the world opinion regarding the system of government has been somewhat modified. The present civil war waged in the Republic of Mexico has roused many intelligent people to ponder over the problem of safety and danger in connection with a newly founded republic and to study the advantage and disadvantage of a republican form of government. Nevertheless, as to my present position and in my way of looking at things, I must say that since we have adopted the republican form of government, we should continue the same system of administration, and it will not be right to contemplate the adoption of any other form of government.
>
> "Some days ago a certain scholar called on me and thoroughly discussed the advantage and disadvantage of both the monarchical and republican forms of government. In response to his inquiry I said as to the functions of the President of a Republic and the exact form of government a country should adopt, it is too great a question and would take some time to study before a solution can be found. In my opinion, the fundamental principle of the Republican Government is to represent the public opinion of the people and to plan with whole efforts the greatest welfare of the

greatest number of the people. As the society in question does not in the least conflict with the fundamental principle of the Republican Government, how can I interfere with its work?

"Repeatedly I have expressed to the public my ambition and my opinion regarding the adoption of a monarchical government. Again shall I declare that I am unwilling to become an Emperor, even if the circumstance requires. Nor am I ambitious for the retaining of the office of the President. I have no love for this post, so long as I have cherished my ambition to retire and resort to places among mountains and waters where I can enjoy beautiful scenery and the teachings of nature. This thought I cannot abandon for a moment. Therefore, with regard to the planning and procedure of the said society, personally I have no prejudice or suspicion whatever.

"In attending to the administrative affairs of the Government, I cannot at the same time disregard the welfare of my family and security of my life and property. Likewise, it is the duty of each citizen to look after the prosperity of his children and kinsmen. How much more important is the problem of planning for peace and prosperity for 400 millions of people? The principal object of the society is to plan peace for the whole people of China, and its intention is therefore wholesome without question. Since I have received the sacred trust of the people, how can I unrightfully interfere with the activity of the association, the aim of which is for the good of the people. Moreover, an important question of this nature ought to be studied by the scholars of the country. In conclusion, I must say that since this society does not in any way cause disturbance in the country, it is not likely that I shall object to its existence."

On August 18 an interview with Professor Goodnow appeared in the *Peking Gazette*, in which Dr. Goodnow disclaimed the uncompromising advocacy of the monarchical system that had been attributed to him. He said that he had never declared that a monarchical system of government was superior, but that on the contrary he was of opinion that no form of government could be said to be superior *under all conditions* to other forms of government. In some countries—the United States and France for example where the grade of intelligence was high and the people had learned the art of self-government by participating in the work of government—a republican form of government was the best. On the other hand a monarchy was often better suited for countries where conditions were different from those obtaining in the United States and France. In China the conditions made difficult the orderly development of republican government, on account, among other things, of the general lack of knowledge of the people and their long subjection to autocratic rule. The re-establishment of a monarchy in China could only be justified because under a monarchy the question of succession to the executive power might possibly be more satisfactorily solved than was probable under any sort of republican government that was likely to be established in this country. A monarchical restoration in China would in his opinion be justified only on conditions.—

(a) That the change be acceptable both to the thinking people of China and to the Foreign Powers in order that it might not meet with such opposition as would lead to disorder.

(b) That the succession to the throne be so fixed that no doubt could arise on the death of the monarch as to who would succeed. If we might judge from the European experience the only proper method of fixing the succession was to give it to the eldest son of the monarch or in default of sons to the eldest male relative.

(c) That the monarchy established be a limited constitutional monarchy, which, while for the moment vesting large powers in the Crown, would permit of the gradual development of greater popular government. The re-establishment of the former autocratic monarchy in China could not be regarded as promising any improvement over present conditions.

Dr. Goodnow declined to say whether those conditions could be met at present in China on the ground that he did not know enough about the country or of Chinese opinion, and he would, therefore, leave that question to be answered by those who did know China's conditions and were responsible for her destinies.

Apparently Dr. Goodnow, while anxious not to appear to advocate a reversion to monarchy, is personally of belief that the change would be in the best interests of China. At all events he is not opposed to a monarchical restoration. It has to be remembered that Dr. Goodnow, while a citizen of a republic, would not allow that fact to influence any recommendation that he might make as an Adviser. He would recommend what he conscientiously believed best in the conditions that prevail in China. The view that he takes, namely, that, if the best informed Chinese deem that the change would be conducive to the interests of the Chinese people, it should be made, is one that will commend itself to most foreigners. The interests of the people is the chief, in fact the only, consideration, and, if the people are likely to secure better protection for life, liberty and property under an Emperor than a President, republican fetishism should not be allowed to be an obstacle. On the other hand if better protection for life, liberty and property would not be secured, the change would be unnecessary and irrational.

MEMORANDUM SUBMITTED BY DR. GOODNOW TO YUAN SHIH KAI

The memorandum on governmental systems submitted by Dr. Goodnow to President Yuan Shih Kai has been made available, and we now reproduce it textually.—

The determination in a given country of the form of government established therein has seldom if ever been the result of the conscious choice of the people of the country or even of the choice of its most intelligent classes. The establishment on the one hand of a monarchy or on the other hand of a republic has in almost all instances been due to influences almost beyond human control. The former history of the country, its traditions, its social and economic conditions all have either favoured the form of government which has been adopted or, in case the form of government at first adopted has not been in harmony therewith, have soon brought it about that that form is replaced by one which is better suited to the country's needs.

In other words, the form of government which a country usually possesses is for the most part determined by the necessities of practical life. Among the contributing causes which fix forms of government, one of the most important is force. Almost all monarchies thus owe their origin in last analysis to the exertions of some one man who has been able to organise the material power of the country in such a way as to overcome all competitors. If he has able sons or male relatives, if he has ruled wisely and if the conditions of the country have been such as to favour monarchical rule, he may be able to establish a dynasty which will during a long period successfully govern the country.

Under such conditions one of the most perplexing problems of government is probably more satisfactorily solved than has usually been the case in republics. For on the death of the monarch there is no question as to the succession to the executive power. No election or other method of choosing a successor is necessary. As the English law expresses it: "The King is dead, Long live the King." In order however, that the desired result may be attained, it is absolutely necessary that the law of succession be clearly determined and practically universally accepted. Else the death of the monarch will bring into being numerous aspirants for the throne whose conflicting claims can be adjudicated only by resort to civil war.

History would seem to prove, furthermore, that the only permanently satisfactory solution of the question of succession in monarchical states is that which has been reached by the states of Europe. This consists in fixing the succession to the throne upon the eldest son of the monarch or in default of sons, upon the nearest oldest male relative. Under this method he who is by the law of succession entitled to the throne is permitted to waive his rights, in which case, if it is the eldest son who has so waived his rights, the next eldest son takes his place.

If some such method of fixing the succession is not adopted, if for example the succession to the throne is left to the determination of the monarch, who may choose as his successor a son not the eldest, or some other relative not the nearest eldest male relative, the uncertainty as to the succession is almost certain to produce trouble. Palace intrigues in favour of the various claimants to the throne are sure to develop which both embitter the closing days of the monarch's life and often lead to confusion if not civil war after his death.

The advantages which history would seem to show are attendant upon a monarchy as compared with a republic, so far as concerns this important question of succession to the executive power, are thus, it would seem, conditioned very largely upon the adoption of that law of succession which experience has shown to be the best, that is succession in the eldest nearest male line.

European Republics

Until recently the accepted form of government both in Asia and Europe was monarchical. It is true that in Europe, contrary to the usual rule, there were a few republics, such as Venice and Switzerland. But the states possessing a Republican Government were few in number and small in size. In almost all the important states of the world the government was monarchical in character.

Within the last hundred and fifty years, however, there is noticeable among European peoples a distinct movement away from monarchical and in favour of Republican Government. The first attempt to establish Republican Government in any of the large European states was made in England in the 17th century. After a successful revolution Charles I, the English King, was tried by Parliament, convicted of treason and executed. A republic, the so-called "Commonwealth," was established with Oliver Cromwell as "Protector" or President. Cromwell obtained his power as a result of his control of the revolutionary army which had defeated the forces of the crown.

This Early English republic lasted only a few years and fell as a result of the difficulties attendant upon the question of the succession to the Protectorate which arose on Cromwell's death. Cromwell had attempted to place his son Richard in the position left vacant by his death. But either because the English people were not suited to a republic or because Richard Cromwell did not have the characteristics required of the possessor of executive power, this attempt to continue the English republic was a failure, and England abandoned the republican and re-established the monarchical form of government. Charles II, the son of the executed Charles I, was put upon the throne, largely as the result of the support of the army but with the almost universal approval of the English people.

The next attempt to form a republic among European peoples was made after the American revolution at the end of the 18th century when the United States of America was formed. The American revolution was due not so much to an attempt to overthrow monarchical government as to a desire upon the part of the English colonies in America to obtain their independence of England. The success of this revolution brought, however, in its train, almost necessarily, the establishment of republican government. There was no royal family left in the country to which its government might be entrusted. There was, furthermore, in the country a distinct sentiment in favor of a republic due in large measure to the fact that quite a large number of those who had participated in the establishment of the ill-fated English republic in the preceding century had come to America and had exerted even after their death an influence in favor of republican institutions.

It is, however, possible that George Washington, who had led the American armies during the revolution, might have if he had been so inclined, established himself as king. He was, however, in principle a republican rather than a monarchist. He furthermore had no son who, had he been crowned king, could have succeeded him.

The result was that, when the United States obtained its independence, it definitely adopted the republican form of government which has lasted during a century and a quarter. The unquestioned success which has attended the United States during most of its existence has done much to give to the republican form of government the prestige which it now possesses. It is well, however, to remember that the United States inherited from England the principles of constitutional and parliamentary government and that these principles had been applied in America for a century or more before the republic was established. The change from the form of government which was in force during the colonial period to the republic adopted in 1789 was not therefore anything in the nature of a change from autocracy to a republic. Such change as was made had been preceded by a long period of preparation and discipline in self-government. Furthermore, the American people even of that day possessed a high grade of general intelligence, owing to the attention which had from the very beginning of American history been given to the common schools, where almost every child could learn at any time to read and write.

The French Revolution.

The establishment of the American Republic was followed almost immediately by the formation of the French Republic. The government of France prior to the declaration of the republic had been autocratic. Almost all public powers were centered in the crown and the people participated hardly at all in the administration. The French people had thus had little experience in self government and were therefore unable to carry on successfully the republic which they endeavored to establish. Periods of disorder followed by military dictatorships followed in rapid succession. The monarchy was restored after the fall of Napoleon largely as the result of foreign intervention. A revolution in 1830 brought into being a more liberal monarchy. This was overthrown by a revolution in 1848, when a republic was again established. The President of this Republic, the nephew of the great Napoleon, overthrew it and declared himself Emperor. After the Franco-Prussian war in 1870, he was deposed and the present French Republic came into being. This republic has now lasted nearly half a century and gives every evidence of permanence.

It is well to remember, however, that the present permanence of republican institutions in France was secured only after nearly a century of political change, if not disorder, and that during that century serious attempts had been made both to give the people generally that education upon which intelligent political action must be based and to accustom them by participation in public affairs to the exercise of powers of self government.

The French, like the Americans, would appear to have solved successfully the most difficult problems in republican government, that is the succession to the executive power. In France the President is elected by the legislature. In the United States he is elected by the people. In both France and the United States the people have had long experience in self government through participation in public affairs, while in both countries, during the past half century particularly, great attention has been paid to their general education through schools in many cases supported by the government. The result is that the grade of intelligence of the people in both America and France is, comparatively speaking, high.

The Latin Republics.

The examples given in the latter part of the 19th century by the United States and France were very largely followed in South and Central America at the time the former Spanish colonies in this part of the world achieved their independence. As was the case in the United States when it became independent a republic seemed the only practicable form of government which could then be adopted. There was no royal family to which the people might look for guidance.

The success which had been attendant upon the establishment of a republic in North America had caused the belief to be entertained by many thinkers, both that a republic was the best form of government and that its establishment and maintenance were possible under all conditions and among all peoples. Republics were therefore established almost everywhere throughout South and Central America. But, either because of the disorders which were incident to the long struggle for independence or because of the difficulties inherent in a republican form of government among a low grade of intelligence, due to the lack of general education, and accustomed only to autocratic rule, the South and Central American republics have not been generally successful. For years after the independence of the Spanish colonies was achieved South and Central America was the scene of continual disorder, incident for the most part to the struggles of military leaders for political power. At times there were periods of comparative peace due to the success of some extraordinarily strong man who was able to seize and keep in his hands political power. Little if any attempt was for a long time made by any of those who obtained political power to educate the people generally through the establishment of schools or to aid them in the acquisition of political experience by according them participation in the government. The result was that when the strong hand which controlled the country was relaxed, owing either to the increasing age or death of him who possessed political power, disorder again appeared, due to the struggles of the claimants for the political succession—since no satisfactory solution of the question of succession was reached. Whatever progress the country had been able to make during its period of peace was arrested and not infrequently the anarchy and chaos which followed caused a serious deterioration in the economic and social conditions of the country.

What has happened in Mexico recently has too often been the lot of the Central and South American States under a republican form of government not suited to their stage of economic and political development. Under the government of Diaz, who acquired political power through his control of the army, it seemed as if Mexico had successfully solved the problem of government. Diaz however, did little for the education of the people and discouraged rather than encouraged their participation in the government. When increasing age caused him to relax his control, revolution broke out again and he fell from power. Since his loss of power the country has been devastated by the contending armies of rival leaders, and at present it would seem that its salvation is possible only as the result of foreign intervention.

It is of course true that in some of the South American countries progress is apparently being made in solving the problems of republican government. Such countries are particularly Argentine, Chile, and Brazil. In both Argentine and Chile a long period of disorder and disturbance has been followed by a comparatively long period of peace. In Brazil the establishment of the republic about twenty-five years ago, was accompanied by little trouble and the subsequent life of the republic has been a peaceful one. In all three countries considerable progress has been made in the establishment of constitutional government, in Argentine and Chile as one of the results of the struggles of the early part of the nineteenth century, in Brazil, partly at any rate, during the Empire which preceded the present republic, and which encouraged the participation of the people in the government of the country.

Lessons from Republican Experience.

The experience of the South and Central American countries would seem to inculcate the same lessons which may be derived from the experience of the United States and France. These are

1st.—That the difficult problem of the succession to executive power in a republic may be solved by a people which has a high general intelligence due to the existence of schools where general education may be obtained and which has learned to exercise political power through participation in the affairs of government; and

2nd—That little hopes may be entertained of the successful solution of the question of Presidential succession in a country where the intelligence of the people is not high and where the people do not acquire political wisdom by sharing in the exercise of political power under some form of constitutional government. Where such conditions do not exist a republican form of government—that is a government in which the executive is not hereditary—

generally leads to the worst possible form of government, namely, that of the military dictator. The best that can be hoped for under such a system is periods of peace alternating with periods of disorder during which the rival claimants for political power are striving among themselves for the control of the government.

Great Powers Will Not Permit Disorder.

At the present time, it may further be remarked, it is very doubtful whether the great powers of the European world will permit the government of the military dictator permanently to exist, if it continues to be accompanied by the disorder which has been its incident in the past. The economic interests of the European world have grown to be so comprehensive, European capital and European commercial and industrial enterprises have become so wide in their ramifications that the governments of the foreign countries interested, although caring little what may be the form of government adopted by the nations with which they deal, are more and more inclined to insist, where they have the power, that conditions of peace shall be maintained in order that they may receive what they consider to be the proper returns on their investments. This insistence they are more and more liable to carry to the point of actual destruction of the political independence of offending nations and of direct administration of their government if this is necessary to the attainment of the ends desired.

It is therefore becoming less and less likely that countries will be permitted in the future to work out their own salvation through disorder and revolution, as may have been the case during the past century with some of the South American countries. Under modern conditions countries must devise some method of government under which peace will be maintained or they will have to submit to foreign control.

China's Needs Considered.

The question naturally presents itself: How do these considerations affect the present political situation of China?

China is a country which has for centuries been accustomed to autocratic rule. The intelligence of the great mass of its people is not high, owing to the lack of schools. The Chinese have never been accorded much participation in the work of government. The result is that the political capacity of the Chinese people is not large. The change from autocratic to republican government made four years ago was too violent to permit the entertainment of any very strong hopes of its immediate success. Had the Tsing dynasty not been an alien rule which it had long been the wish of the Chinese people to overthrow, there can be little doubt that it would have been better to retain the dynasty in power and gradually to introduce constitutional government in accordance with the plans outlined by the commission appointed for this purpose. But the hatred of alien rule made this impossible and the establishment of a republic seemed at the time of the overthrow of the Manchus to be the only alternative available.

It cannot, therefore, be doubted that China has during the last few years been attempting to introduce constitutional government under less favorable auspices than would have been the case had there been a royal family present which the people regarded with respect and to which they were loyal. The great problem of the Presidential succession would seem still to be unsolved. The present arrangement cannot be regarded as satisfactory. When the present President lays down the cares of office there is great danger that the difficulties which are usually incident to the succession in countries conditioned as is China will present themselves. The attempt to solve these difficulties may lead to disorders which if long continued may seriously imperil the independence of the country.

What under these conditions should be the attitude of those who have the welfare of China at heart? Should they advocate the continuance of the Republic or should they propose the establishment of a monarchy?

These are difficult questions to answer. It is of course not susceptible of doubt that a monarchy is better suited than a republic to China. China's history and traditions, her social and economic conditions, her relations with foreign powers all make it probable that the country would develop that constitutional government which it must develop if it is to preserve its independence as a state, more easily as a monarchy than as a republic.

But it is to be remembered that the change from a republic to a monarchy can be successfully made only on the conditions:—

1st.—That the change does not meet with such opposition either on the part of the Chinese people or of foreign powers as will lead to the recurrence of the disorders which the present republican government has successfully put down. The present peaceful conditions of the country should on no account be imperiled.

2nd.—The change from republic to monarchy would be of little avail if the law of succession is not so fixed that there will be no doubt as to the successor. The succession should not be left to the Crown to determine for the reasons which have already been set forth at length. It is probably of course true that the authority of an emperor would be more respected than the authority of a president. The people have been accustomed to an emperor. They hardly know what a President is. At the same time it would seem doubtful if the increase of authority resulting from the change from President to Emperor would be sufficient to justify the change, if the question of the succession were not so securely fixed as to permit of no doubt. For this is the one greatest advantage of the monarchy over the republic.

3rd.—In the third place it is very doubtful whether the change from republic to monarchy would be of any lasting benefit to China, if provision is not made for the development under the monarchy of the form of constitutional government. If China is to take her proper place among nations greater patriotism must be developed among the people and the government must increase in strength in order to resist foreign aggression. Her people will never develop the necessary patriotism unless they are given greater participation in the government than they have had in the past. The government never will acquire the necessary strength unless it has the cordial support of the people. This it will not have unless again the people feel that they have a part in the government. They must in some way be brought to think of the government as an organization which is trying to benefit them and over whose actions they exercise some control.

Whether the conditions which have been set forth as necessary for such a change from republic to monarchy as has been suggested are present, must of course be determined by those who both know the country and are responsible for its future development. These conditions are present if there can be little doubt that the change would be of benefit to the country.

ASPHALT IN LEYTE—THE NEW PHILIPPINE OIL FIELD

The deposits of asphalt in Leyte, which have been reported by the local press from time to time during the past year, have recently been examined by the Chief of the Division of Mines of the Bureau of Science, and the following preliminary statement sets forth the principal results of the examination.

It will be recalled that asphalt was first reported from Leyte a little more than a year ago, having been discovered by a Filipino ranger employed by the Bureau of Forestry. The original discovery was made near the head of the Butason River in a region about 10 kilometers distant from the barrio of Campocpoc on the north-western coast of the island. The outstanding feature of the recent official examination is the discovery of a large deposit of bituminous limestone, or, as it is more commonly called, rock asphalt, near the town of Villaba and at a point very much closer to the sea coast than the original discov ry. At the beginning of the present year prospectors learned that unimportant quantities of semi-liquid asphalt were seeping from small holes in the wall of a cañon near Villaba, but they believed the occurrence to be of little value because of the small quantity of the material found. The fact that the whole rock face was impregnated with asphalt was not detected previous to the official investigation. Although the deposit has not been explored by artificial openings it is well exposed by the deep cañon and there is little question that the quantity of material present is to be measured in thousands of tons. The upper 6 meters of the rock asphalt which occurs in thick beds is a bituminous, sandy limestone while an equal thickness at the base is bituminous sandstone.

Other important discoveries made by prospectors themselves have revealed deposi.s of greater extent than the original discovery which consists of only a small pocket. Taking into consideration the first findings and the results of the subsequent prospecting, outcrops of various grades of asphalt, including solid, viscous and liquid types, together with seeps of the petroleum from which the asphalt has been derived, are known to occur over an area about 20 kilometers in length. The more important discoveries, however, are limited to an area about 13 kilometers in length.

Perhaps the greatest importance of the Leyte asphalts is their significance as to the presence of petroleum in the rocks from which they escape. It is unquestioned that asphalts originate from petroleum through the loss of the more v latile oils and the concentration of the heavier residual matter. Thus it is that the finding of asphalt in Leyte makes certain the former presence of petroleum n the adjacent rocks. This is important, not only in connection with the Leyte region, but also because it bears upon the petroleum field of Bondoc Peninsula, Tayabas Province. Those who have been interested in petroleum will recall that the report on the Bondoc petroleum field, issued by the Bureau of Science some time ago stated that there was no question as to the existence of petroleum in Tayabas, but that there was a question as to the quantity of petroleum present and a further question as to whether conditions were such that the petroleum would flow readily from wells in case wells were drilled. The examination of the Tayabas petroleum field and the recent examination of the asphalt deposits in Leyte have been made by the same man, and it develops that the rock series in the two regions are identical; that is to say, the one field may be considered as a detached portion of the other. In Tayabas the petroleum was found to come from the upper part of a series of thin bedded shales called, for convenience, tuff-sandstone and this, in turn, by calcareous sandstone and limestone. In Leyte exactly the same rocks are found, the Vigo shales at the base of the series overlain by a tuff-sandstone, calcareous sandstone, and limestone.

There is one point of difference in the two fields, however. In Tayabas petroleum was actually found only in the upper members of the Vigo shales, although, to be sure, its presence was suspected at other horizons. In

Leyte petroleum or asphalt which has resulted from the dissipation of petroleum is found at several horizons from the base to the upper part of the Vigo shales, in the overlying tuff-sandstone and, finally, in the calcareous sandstone and limestone at the top of the rock series. Moreover, the quantity of asphalt and bituminous limestone in Leyte is large enough to make it certain that the quantity of petroleum originally present in the formations must also have been of commercially important proportions. From this it may be deduced with a considerable degree of probability that the quantity of petroleum in Tayabas is likewise important.

Similar to Tayabas Field

There remains, however, an uncertainty as to whether or not petroleum can be obtained in commercial quantities in either field by the common method of drilling wells into the rocks. Both in Tayabas and in Leyte the oil bearing rocks are extremely fine grained, and it is not at all certain that the petroleum moves freely enough in these fine grained rocks to flow readily into wells. Because of this, it was anticipated in the case of the Tayabas field that individual wells would be small producers and would probably not flow of their own accord, but would require pumping. The same condition holds in Leyte.

The question will at once be asked, how it is that the large quantities of petroleum necessary for the accumulation of the various asphalt deposits of Leyte could have been driven to the surface unless there is an equally strong probability of obtaining large quantities of petroleum by drilling wells into the same rocks. The answer as revealed by the examination just made, is that the petroleum which gave rise to the asphalt deposits was forced out of the containing rocks by the subsequent intrusion into these rocks of numerous bodies of molten or semi-molten igneous rock. The petroleum bearing rocks in Leyte are cut through at many places by small bodies of igneous rocks, and it is conceived that these intrusions in their original heated condition distilled the petroleum from the shale and drove it to the surface along fractures and bedding planes. Obviously the mere penetration of the petroleum bearing rocks by wells would be a less efficient method of removing the petroleum than nature has employed.

The Tayabas oil is an extremely light oil with a high percentage of gasoline. The appearance of representative samples of the Leyte petroleum taken by the geologist during the recent examination indicates that it is also a light oil, although it will probably be found to be somewhat heavier than the Tayabas oil. The fact that both oils have a paraffin base and come from the same rocks makes it certain that they are related in origin.

Field Merits Attention

It is inevitable in the light of the foregoing statements that the matter of drilling for petroleum in Leyte should receive attention. In this connection, it is impossible from the data so far obtained to draw conclusions as definitely as is desirable. More work must be done before it is possible to say whether the chances of obtaining petroleum in commercial quantities in Leyte justify drilling, and a great deal more work must be done before it will be possible to indicate the proper locations for exploratory wells. The fact that the oil bearing rocks have been broken through by later intrusives makes the question a complex one. Similar conditions obtain in Mexico, where there has recently been developed one of the most important petroleum fields in the world. There, many wells have been drilled adjacent to petroleum seeps which occur at the contact of the intrusion with the sedimentary rocks. The proper location of the Mexican wells is, therefore, a simple matter. In contrast with the results of exploration in the Mexican field, however, there are numerous other regions where asphalt occurs as it does in Leyte, but where all attempts to obtain the petroleum from which the asphalt is derived have failed.

It is a foregone conclusion that the proper exploration of the Leyte petroleum deposits, if it be advisable at all, will be an expensive undertaking. It is highly probable that a series of wells would have to be drilled before the true character of the formations could be ascertained with sufficient exactness to ensure any degree of certainty of success in the location of new wells, and the ultimate failure of all attempts is a possibility to be kept in mind. The enterprise is one, therefore, which calls for backing by large capital.

Even though no petroleum is obtained in Leyte, some of the deposits of asphalts are in themselves of possible commercial importance. In the first place, it may be possible to use the rock asphalt at Villaba as a paving material. Chemical analyses now being made will throw more light on this possibility, but the question must be determined finally by actually paving a section of some street with this material.

Plan Practical Test

There is reason to believe that the Bureau of Public Works, in co-operation with the holders of the mineral claims, will make such an experiment. If the material can be successfully employed for paving, it will undoubtedly find a considerable market in the Philippines themselves, and it might be exported to the China coast and to Japan. Rock asphalt is not extensively used as a paving material in the United States largely because of the abundance and consequent cheapness of true asphalt. In Europe, however, there are millions of square meters of rock asphalt pavement. Indeed, in France and Italy rock asphalt is the standard paving material. Italy, for instance, uses annually about 200,000 tons of rock asphalt, valued at more than a million pesos.

A prominent American engineer and chemist has written a standard reference book in which the usefulness of rock asphalt as a paving material is belittled, and his conclusion has undoubtedly been instrumental in deterring American engineers from the use of rock asphalt. In spite of this, however, rock asphalts of Oklahoma which were particularly denounced in the book referred to are now being used successfully and have proven to be one of the best paving materials obtainable. Even in California, where true asphalt, obtained as residual from asphaltic petroleum, is so abundant as to be almost a drug on the market, more than 27,000 tons of rock asphalt, worth five pesos a ton, was used in 1913.

In case it develops that the Leyte rock asphalt is not suitable for paving, there is still a possibility of using some of the purer asphalt for the manufacture of paraffin and other products, such as bituminous paints and varnishes. Asphalts which can be used for varnishes are worth about 35 pesos a ton in the United States. Ozocerite, from which large proportions of paraffin are obtained, is worth from ten to fifteen centavos per pound in the United States. Thus, it appears that asphalts high in paraffin command even a better price than true asphalts. Of course, the market for the derived products, such as paraffin and varnishes, would be limited in the Philippine Islands, but exportation to China and Japan is at least a possibility. It is true also that more capital would be required to establish an industry if the Leyte asphalt must be refined and manufactured than if it can be sold in the crude state for paving purposes.

To Solve Full Problem

If petroleum can be obtained either in Tayabas or in Leyte in quantities sufficient to make it a competitor with coal as a fuel, a great problem will have been solved. The biggest local field for a fuel oil would be the inter-Island shipping. If ships could obtain a fuel oil at a price which would make its use comparable in cost with the use of imported coal, there is no doubt but that the inter-Island boats would be equipped to burn oil instead of coal. The railroads, likewise, would undoubtedly prefer petroleum to coal in their locomotives. Several of the mines in Masbate are already using fuel oil, although they have to import it from Sumatra and Borneo.

Gasoline and kerosene are used in considerable quantity in the Philippines. The imports of crude oil, naphtha, illuminating oil, lubricating oil, and residum during the calendar year 1914, according to the annual report of the collector of Customs, amounted to p. 3,642,078. This sum represents the magnitude of the established market only exclusive of the increased demand which would be inevitable if petroleum could be obtained in competition with coal as a fuel. The enterprise which is successful in developing Philippine petroleum and refining it locally in competition with foreign manufacturers will control a market of no mean proportions without the necessity of any exportation.

According to the *Manila Daily Bulletin*, the chemical analyses have been completed upon representative samples of the deposit of rock asphalt discovered by the Division of Mines, Bureau of Science, in Leyte, and the results justify the hopes already expressed that this material would prove suitable for paving purposes. Samples of the poorer rock, according to analyses just completed, contain 6 per cent. of bitumen. The average rock contains from 7 to 9 per cent. bitumen, and rich portions near the base of the deposit contain as much as 62 per cent. bitumen. The analyses show further that the bitumen consists largely of asphaltene and that the proportion of paraffin, a constituent which is undesirable in asphalt for paving, amounts to less than one half of one per cent. of the total bitumen. The results of the analyses tend to remove the doubt which has been felt as to the possibility of using the Leyte rock asphalt for paving.

The purer bitumens in Leyte, associated with the rock asphalt, are known to be high in paraffin and to form brittle solids unsuitable for pavement, but the rock asphalt itself appears to be free from these objections and to be very similar, so far as analyses reveal its character, to rock asphalts which are successfully used for paving in the United States and Europe.

It is probable that a trial pavement will be constructed from the Leyte rock asphalt upon which observations can be made to determine absolutely the suitability of this material for paving. If the results of this experiment are favorable, it ought to be possible to use the Leyte rock asphalt in paving the streets of Manila and other Philippine cities, and the deposit, consequently, assumes considerable importance.

The chemical investigation of other bituminous materials in Leyte also shows that valuable products, such as lubricating oils, kerosene, and even some gasolene, can be distilled from a bitumen-clay mixture which is present in an apparently large deposit. These results indicate the possibility of establishing a distillation industry similar to the distillation of kerosene shale in Scotland and in New South Wales. The character and the quantity of the distillation product obtained from the Leyte material compares favorably with the results of commercial distillation in these other countries.

The distillation of kerosene shales in Scotland has been carried on for many years, and in New South Wales government aid in the form of a bounty or premium on the products of distillation has led to a considerable growth of shale distillation in that country in recent years. It is hoped that the Leyte deposits can be utilized in the same manner.

THE PHILIPPINE RAILWAY COMPANY

[*Ninth Annual Report to December 31, 1914*]

Following is the Ninth Annual Report of the Philippine Railway Company, operating lines in Cebu and Panay Islands for the year 1914.

No bonds were issued during the year, the total issue having been completed and the construction accounts closed during the year 1913. The total issue of four per cent guaranteed bonds covering all construction expenditure in accordance with the terms of the concession is $8,551,000.

Torrens titles have been obtained of the right of way on Panay through the Province of Capiz, 49.5 kilometers, and on Cebu through the two friar estates, 12.5 kilometers. The case covering the section through the Province of Iloilo will be heard by the Land Court on March 1st, 1915. The issue of registered titles throughout the islands proceeds very slowly, and while every effort has been made to have our applications acted upon, we were unable to secure the titles during this year. It now seems probable that all titles will be issued early in 1915, with the exception of the section of right of way in the City of Cebu and its suburbs, where, due to the very large number of cases involved, there will probably be a longer delay.

Maintenance Costs Lower

As compared with the previous year there was a decrease of $33,527.04 in the cost of Maintenance of Way and Structures. Expenditures during 1913 were unusually large, due to renewing with creosoted piling the long approaches to bridges on Panay, the replacing of bridges washed out by the typhoon of 1912, and other heavy maintenance work due to the same cause. It is expected that tie and telephone pole renewals will be the only items of maintenance expense which will increase during the coming year.

No increase was made to the equipment during the year. One ballast car, carried away or buried in the Talisay Gravel Pit by the high water of October, 1912, was written off the books. This was not written off earlier as we are still taking ballast from the same pit and considered there was a possibility of recovering the car.

The cost of maintenance of equipment was $5,862.55 less than during the previous year, the largest items of saving being on locomotive and ballast car repairs, Panay. The original pine wood work on a number of freight cars will have to be renewed with native hard wood during 1915. During 1914 five locomotives received thorough overhauling. For the year 1915 three locomotives will require heavy repairs. Four third-class passenger cars and twenty-one freight cars were rebuilt as to wood work, or received heavy repairs during the year. In 1915 the wood work on eleven third-class and thirty-eight freight cars will have to be renewed. Transportation expenses show a saving of $12,702.14 over 1913, due almost entirely to decreased coal consumption.

Station and Train Service:

All dispatchers, station agents and train employees are Filipinos, with the exception of one American conductor and one American engineman. No change has been made in train schedules during the year. Conditions are such as to make it advisable to handle both passengers and freight on all trains. On the Cebu Division four trains in each direction daily between Carcar and Cebu; and two trains in each direction daily between Cebu and Danao and between Carcar and Argao. On the Panay Division between Iloilo and Capiz there are two trains in each direction daily; and between Iloilo and Passi, and between Dumarao and Capiz, there are two additional trains daily in each direction.

During the year one trespasser was killed and one injured by passing trains. No employees were injured. There were no train accidents of sufficient importance to be reported.

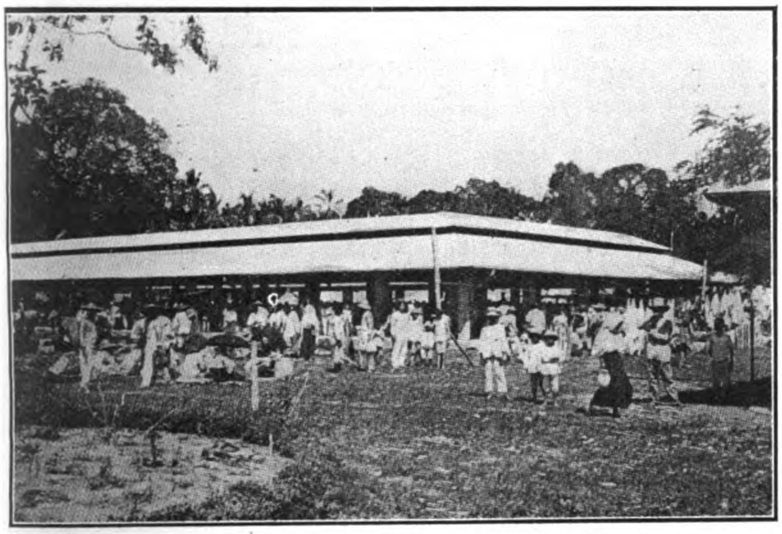
Coal consumption shows a decided decrease over the previous year, due to purchases having been made on the basis of fuel efficiency, and a system of prizes to train crews for economical consumption. As compared with 1913 the cost and consumption of fuel used by locomotives was as follows:

	1914	1913
Total value of coal on tank	$36,427.13	$47,985.83
Total locomotive coal consumption (kgms.) ...	6,839,021	8,610,715
Coal consumption per locomotive kilometer (kgms.)	13.76	16.44
Coal consumption per 100 tonne kilometers (kgms.)	9.80	11.95

The traffic rules were re-published during the year with all modifications made by Traffic Orders since the previous issue in 1909. The traffic organization continues as heretofore, to assist in every way possible in the development of the country through which the lines pass. During the year 12.1 per cent more passengers and 18.8 per cent more tonnes of freight were handled than during the previous year. The improvement is more marked on Panay, where the number of passengers increased 15.4 per cent, and tonnes freight increased 55.7 per cent.

Sugar Crop Increases

On Panay agricultural conditions have been good, except for the rice crop on the south end, which fell about 25 per cent below normal on account of dry weather and insects. This will affect to some extent the business of next year. Sugar production on Panay is next in importance to rice. During the year a number of small mills were erected and efforts have been made to secure government funds for the erection of a central along the line of the railway, but no decision has yet been reached. A decided impetus has been given to sugar production on account of an expected rise in prices due to the European War.



Market Day at Santa Barbara.

Corn Demonstration in Market.

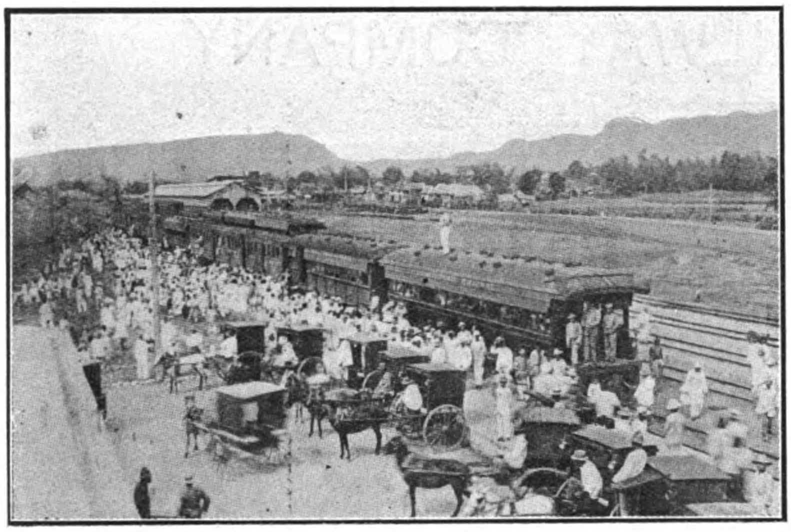
Conditions on Cebu during the first seven months of the year were much improved over 1913, total operating revenues increasing 18.3 per cent over the same period of the previous year. For the last five months of the year the revenues decreased 8.8 per cent as compared with the last five months of 1913. The European War seriously affected the hemp and copra trade at the port of Cebu, there being no market for these products for several months. Agriculture also suffered severely from lack of rain. It does not seem probable that present conditions will be much improved during the coming year.

Auxiliary Operations

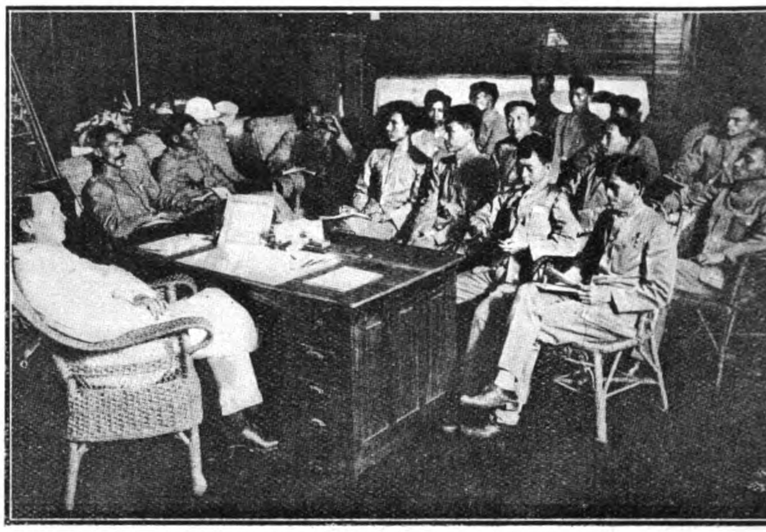
The Launch "Drake" and Lighter "Carlos" were both retired from service during the year. The boiler and engine of the "Drake" are in very good condition, and we are endeavoring to dispose of them. A thorough inspection of the hull shows that the expense of overhauling will practically equal the cost of a new boat, and it is not believed the expenditure is advisable.

All the plates of the "Carlos" are very thin, and the bottom was in such shape three years ago that it was necessary to put in a layer of cement. She was in a heavy gale on the coast of Negros the latter part of the year and was badly battered against the shore. The pounding she was subjected to broke to pieces the cement, further damaged the bottom plates, and so injured the entire vessel that it will not pay us to make repairs.

These boats were purchased in 1908 and undoubtedly paid for themselves during con-



FIESTA TRAIN ARRIVING AT CEBU STATION WITH 1200 PASSENGERS.



AGENTS' NIGHT SCHOOL, CEBU DIVISION.

struction in the saving in cost of transporting company material.

The principal items of Additions and Betterments were the lengthening of the Talisay Bridge, Cebu, by four 20-foot spans, at a cost of $2,081.98; raising and lengthening bridges and raising track Kilometer 44.65 to Kilometer 46.12, Cebu, at a cost of $1,486.20, to provide additional water way for flood drainage channel constructed by the Government; and laying two commercial side tracks, Panay, at a cost of $752.24.

LIABILITIES

Capital stock—common		$5,000,000.00
Mortgage bonds		8,551,000.00
Audited vouchers and wages unpaid	$ 21,252.14	
Other working liabilities	1,713.51	22,965.65
Advances by Philippine Government to meet bond interest ..		1,807,718.45

APPROPRIATED SURPLUS:

Additions to property through income	$ 35,407.55	
Reserve for extraordinary emergencies	75,000.00	
	110,407.55	

INCOME ACCOUNT

Rail Operations—Revenues:		
Freight Revenue ..	$112,899.88	
Passenger Revenue ..	220,711.84	
Excess Baggage Revenue	959.28	
Mail Revenue	5,439.24	
Express Revenue ..	5,578.94	
Switching Revenue ..	4,848.87	
Total Revenue from Transportation		$350,438.05
Station and Train Privileges	$ 6.00	
Storage—Freight ..	84.63	
Rent of Buildings and Other Property ..	3,580.23	
Miscellaneous	7,122.09	
Total Revenue from Operation Other than Transportation ..		10,780.95
Total Operating Revenue		$361,219.00
Rail Operations—Expenses:		
Maintenance of Way and Structures	$ 51,150.57	
Maintenance of Equipment	45,940.13	
Traffic Expenses ..	8,301.84	
Transportation Expenses	97,950.52	
General Expenses ..	29,451.93	
Total Operating Expenses ..		232,794.99
Net Revenue—Rail Operations.		$128,424.01

TRAFFIC STATISTICS

All Divisions, Year Ended December 31, 1914.

	1914	1913	Increase or Decrease	Per Cent
Passenger:				
Total Number Carried	1,188,461	1,059,697	128,764	12.15
First Class	3,167	5,727	2,560*	44.70*
Second Class	186,717	167,704	19,013	11.34
Third Class	998,577	886,266	112,311	12.67
Number Carried One Kilometer	27,185,933	24,493,733	2,692,200	10.99
Average Distance Carried per Klm ..	22.9	23.1	.2 *	.86*
Average Receipt per Passenger	$ .1857	$ .1932	$ .0075*	3.88*
Average Receipt per Passenger per Klm.	$ .0084	$ .0003	$ .0003	3.57*
Freight:				
Total Number Tonnes Carried	98,708	83,038	15,670	18.87
Number Tonnes Carried One Klm ..	3,535,821	2,448,301	1,087,520	44.42
Average Distance Carried per Klm. ..	$ 35.8	29.5	6.3	21.35
Average Receipt per Tonne	$ 1.1438	$ 1.0892	$ .0546	5.01
Average Receipt per Tonne per Klm ..	$ .0319	$ .0369	$ .005 *	13.55*

REVENUE AND EXPENSES

REVENUE	1914	1913	Increase or Decrease	Per Cent.
Passenger	$ 220,711.84	$ 204,755.88	$ 15,955.96	7.79
Freight	112,899.88	90,441.83	22,458.05	24.83
Excess Baggage	959.28	830.12	129.16	15.55
Mail	5,439.24	5,413.55	25.69	.47
Express	5,578.94	4,259.12	1,319.82	30.98
Switching	4,848.87	5,119.50	270.63*	5.28*
Non-Transportation	10,780.95	9,767.72	1,013.23	10.37
Total Revenue	$ 361,219.00	$ 320,587.72	$ 40,631.28	12.67
EXPENSES				
Maintenance of Way and Structure ..	$ 51,150.57	$ 84,677.60	$ 33,527.03*	39.59*
Maintenance of Equipment	45,940.13	51,802.68	5,862.55*	11.31*
Traffic	8,301.84	14,064.26	5,762.42*	40.97*
Transportation	97,950.52	110,652.65	12,702.13*	11.48*
General	29,451.93	27,293.27	2,158.66	7.91
Total Expenses	$ 232,794.99	$ 288,490.46	$ 55,695.47*	19 30*
Net Operating Revenue	$ 128,424.01	$ 32,097.26	$ 96,326.75	300.11
Operating Ratio	64.44%	89,99%		
Miles Operated	131.65	131,65		

*Decrease.

Auxiliary Operations—Revenues:		
Commercial Shop Work	$32,516.91	
Boat Line	1,715.82	
Total Revenue ..	34,232.73	
Auxiliary Operations—Expenses:		
Commercial Shop Work	$27,030.96	
Boat Line	6,712.55	
Total Expenses ..	$33,743.51	
Net Revenue—Auxiliary Operations		489.22
Net Operating Revenue		$ 128,913.23
Taxes		2,494.67
Operating Income		$ 126,418.56

Income from unfunded Securities and Accounts	$2,842.07	
Miscellaneous Income ..	320.00	
Total Other Income		3,162.07
Gross Income		$129,580.63
Deduction from Gross Income:		
Interest on Funded Debt	$342,040.00	
Miscellaneous	798.22	
Total Deductions		342,838.22
Net Loss		$213,257.59
Appropriation for Additions and Betterments:		
Expended during the year ..		3,949.09
Income Balance Transferred to Debit of Profit and Loss		$217,206.68

THE RAILWAYS OF CHOSEN

The Annual Report of the Chosen (Korean) railways for the Fiscal Year 1912 has recently been presented to the Governor-General of Chosen by the Director of the Railway Bureau. Although it is late in appearing it is worthy of reproduction in part as showing the progress made by the Japanese in the development of the railway system of the country. It is as follows:—

The average working mileage for the year in passenger traffic was 802.9 miles and that in goods traffic 797.3 miles, showing increases of 93.9 miles in the former and 88.4 miles in the latter over the preceding year. The train mileage totalled 3,015,987 miles, the number of passengers carried, 4,399,022, and the tonnage of freight hauled, 1,105,362 tons, showing increases of 708,320 miles in train mileage, 1,969,335 in passengers and 42,251 tons in freight hauled, compared with the corresponding figures of the preceding year. The aggregate passenger and freight mileages were 165,034,551 and 100,282,500, respectively, being an increase of 60,038,511 in the former and of 9,854,175 in the latter over the preceding year.

The receipts for the year were *Yen* 3,545,225 from passengers and *Yen* 2,281,743 from freight, making a total of *Yen* 5,826,968 and showing an increase of *Yen* 904,414 over the preceding year.

The following are the general features to be noted in regard to the traffic during the year under review.

In passenger traffic, the revision in fare which resulted in a striking increase in the number of passengers, the greater transportation of troops, both relief and time-expired, caused by those destined for Manchuria, the great popularity of the excursion trains run to Sodo, Suigen and Kaijyo, the less damage done to tracks and consequently the less obstruction caused to traffic from annual floods during the rainy season, notwithstanding the heavy rains experienced, the fine weather in autumn which induced people to go on excursions and picnics, and the transportation of tourist parties and immigrants from Japan, all combined to bring about a result never before attained.

In goods traffic, though the revision in freight charges and reduction in the rate for grain destined to ports were the cause of great increase in the quantity of goods handled, the transportation of Manchurian millet, the demand for which by Koreans had arisen on account of the rise in market price of rice in Japan, the transportation of Heijyo and Fushun coal, and of refined salt from Jinsen, all increased greatly on account of enlarged demand, and the transportation of building materials, tobacco, dried salt fish, firewood and charcoal also increased to a certain extent compared with last year; but, on the other hand, the difficulty of living experienced by Koreans on account of the rise in the market price of rice made their demand for spun thread, calico, hemp cloth and furniture less, and in consequence the transportation of these goods showed a decrease when compared with that of last year.

The principal traffic arrangements made during the year were as follows: the revision in passenger fares on April 1, 1912, fixing them in proportion to the distance travelled instead of decreasing the mileage rate with increase in distance as heretofore practised, and making the 3rd class fare two *Sen* per mile with increases of 75 per cent. and 150 per cent. respectively for 2nd and 1st classes. The revision in freight charge was made on July 1, by adopting the regulation for classification of goods and greatly reducing the charge. The regulation for lowest possible rate was abolished and that of car consignment put in force at the same time. Besides this, the section for decreasing the mileage rate with increase in distance was further extended, making the transportation of goods over a great distance cheaper than ever. To keep pace with the Shimonoseki-Shimbashi limited express, which is a new service, the Chosen-Manchuria through express was extended to Fusan for the convenience of passengers to and from Europe or China, and revision in train time on all lines too was made on June 15. The provision of 1st class berths on the Fusan-Antung express train was begun on August 15; the installations for electric lighting were made on the Kei-Fu and Kei-Gi through expresses and Kei-Jin trains and have been in use since November. The reduction in car consignment charge of grain destined to goods stations at Fusan, Soryo, Kunsan, Jinsen, Chinnampo and Shingishu was put in force on December 1 so as to encourage the transportation and exportation of grain. Return tickets at reduced rates were put on sale on every market day at neighbouring stations to afford facility to passengers going to market at Taikyu, Shari-in and Sensen, and their hand-luggage carried free of charge up to 100 *kin* from March 1. In joint traffic, the extension of the sections and certain other improvements in joint transportation on the lines of the Imperial Railways of Japan and the South Manchuria Railway Co. were made. For the facility of communication along the coast, a new joint traffic was opened with liners of the Chosen Yusen Kaisha (Chosen Mail S. S. Co.) on August 1. Among other things many important matters were put in force, such as the opening of traffic on the new lines, and other arrangements made to induce passengers and goods to avail themselves of the railway.

Station hotels were opened at Fusan and Shingishu by utilizing the upper floors of the stations, the former on July 15 and the latter on August 15. Though we have not yet attained fine results in this direction, we are sure that they are a great convenience to passengers.

The locomotive mileage during the year totalled 3,487,058 miles, and the converted carriage and wagon mileage 23,126,404 miles; coal consumed amounted to 194,624,228 *kin*, that is, 179,179,947 for running and 15,444,281 for lighting, etc; oil consumed reached 146,591 *sho*, that is, 79,125 for locomotive and 69,466 *sho* for carriages, wagons, etc. Compared with the corresponding figures of the preceding year, these show increases of 668,060 in locomotive mileage, 4,850,585 in carriage and wagon mileage, 42,983,867 kin in coal consumed for running and 3,801,517 in that for lighting, 13,929 *sho* in oil for locomotives and 13,588 in that for carriages, wagons, etc.

Rolling stock returns show 138 locomotives, 209 carriages, 1,445 wagons and two steamboats, being increases of 5 locomotives, 18 carriages and 110 wagons.

The principal items of equipment and improvement made to rolling stock, etc. were the addition of 5 locomotives, 12 carriages, and 116 wagons, and the erection of 31½ spans of girders, besides the equipping of 14 locomotives with steam brakes and of 90 carriages with electric lamps, the alteration of couplers in 12 wagons, the new equipping of 51 wagons with automatic couplers and of 86 with air train pipes.

The aggregate length of electrical communication lines at the end of the year was 2,105 *ri*; telegraphic apparatus provided numbered 122, telephonic, 877 and blocks, 235. Railway telegraph stations numbered 129; railway messages dealt with were 3,597,264 and public messages, 348,502, being a total of 3,945,766. The revenue from public telegrams was *Yen* 11,259. Generating stations numbered two, with engines of 830 h. p. in total capacity and 466 k. w. in that of generators. Electric lamps numbered 33 arc and 5,308 incandescent, 6 of the former and 1,179 of the latter being supplied under contract. Those installed in carriages numbered 1,265 in all.

Traffic mileage during the year totalled 837 miles and the aggregate mileage of tracks, 1,033 m. 27 ch., being increases of 69. 4 miles in the former and 87 m. 55 ch. in the latter over the preceding year. The number of the stations was 131, being greater by 10 than in the preceding year.

As to maintenance, such works as repairs to tracks, renewal of sleepers, spreading of gravel, repainting of bridge girders, renewing of telegraph poles, repairs and alterations in station buildings and official residences, and other works necessitated by the condition of the tracks on every line, were done during the year.

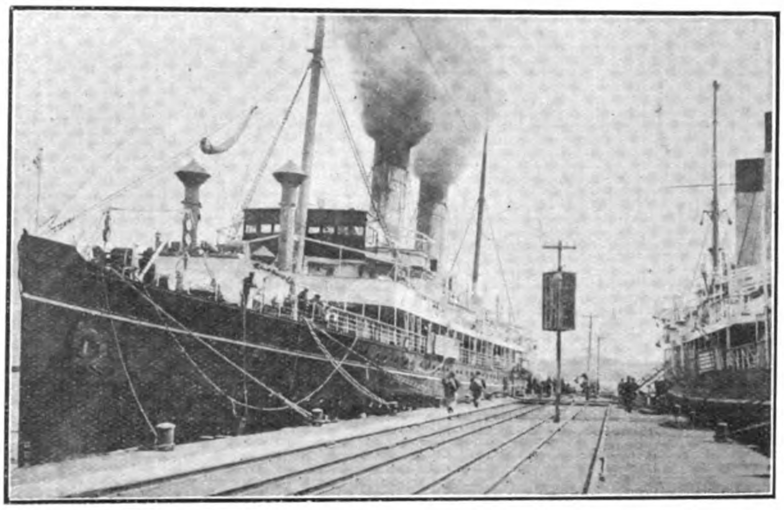
Of additional works done, completion of the remaining portion of the reconstruction of In-Yokusen section, and other arrangements and additions consequent upon that already done must be mentioned.

As to extraordinary repairs, restoration of tracks, embankments, cuttings and various buildings was effected, as the rain in July inflicted some damage on the various lines.

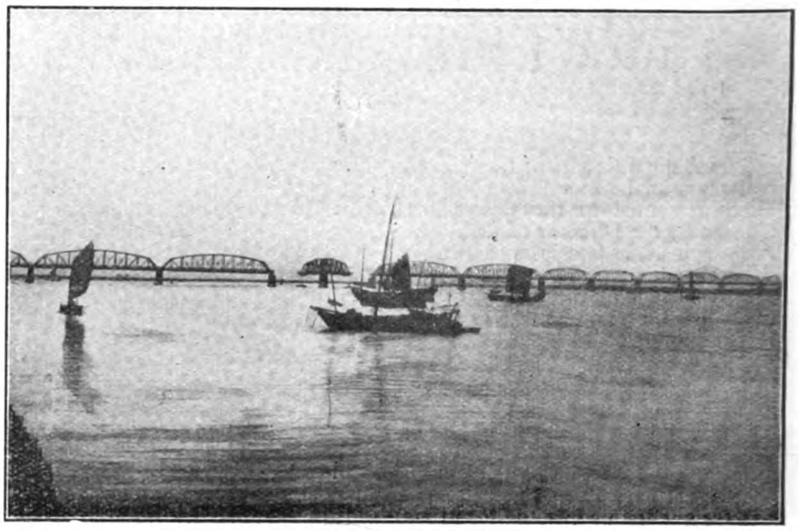
As to improvements, about two-tenths of the body and embankment works of bridge No. 2 over the Kanko was done, and improvement work on the foundations of piers Nos. 4, 5 and 9 of the bridge taken up. The construction of piers for the flood openings for the Seisen and Dainei, the raising of the formation level along the Koshu-Chinson section, and various other works were also done.

As regards the progress of construction the following may be mentioned: on the Kei-Fu line the construction of bridge No. 2 over the Kanko, the erection of dormitory and boarding house, and the installation of interlocking machines in Nandaimon Station compound, the addition of a roof over the platform leading to the Customs pier at Fusan Station, besides the building of some official houses and dormitories, were completed. On the Kei-Gi line, the installation of interlocking machines in Ryuzan Station compound, the construction of the machine shop and the head office building in the same compound, carried on from the previous year, the building of Mochuri Station, the reconstruction of the temporary bridges on the Hei-Nan line, as well as alterations in stations, and the addition of open culverts, etc. were all taken up. On the Kei-Gen line, the construction work made striking progress since October, 1910, when it was taken up and the Giseifu-Tetsugen section (41.4 m.) was opened to traffic during the year. The greater part of the earth and bridge work on the Tetsugen-Sempo section, and the earth, bridge and rail-laying work on the Gensan-Nanzan section were also completed during the year, while the remaining part of the work made progress as predetermined, and the construction of Official houses and dormitories, as well as of telegraph lines, was taken up. On the Konan line, the construction work has made great progress since October, 1910, when it was started, and the Riri-Seiyu section (27.2 m.) was finished and opened to traffic during the year. On the remaining part of the line, one-half of the tunnelling between Seiyu and Shigairi, eight-tenths of the work of the rest, and work on the Mokpo-Kakkyo section (22.3 m.) were completed, while the remaining part of the work also made the progress planned in earth, bridge and tunnel works, and the erection of official houses, dormitories and telegraph lines was also taken up.

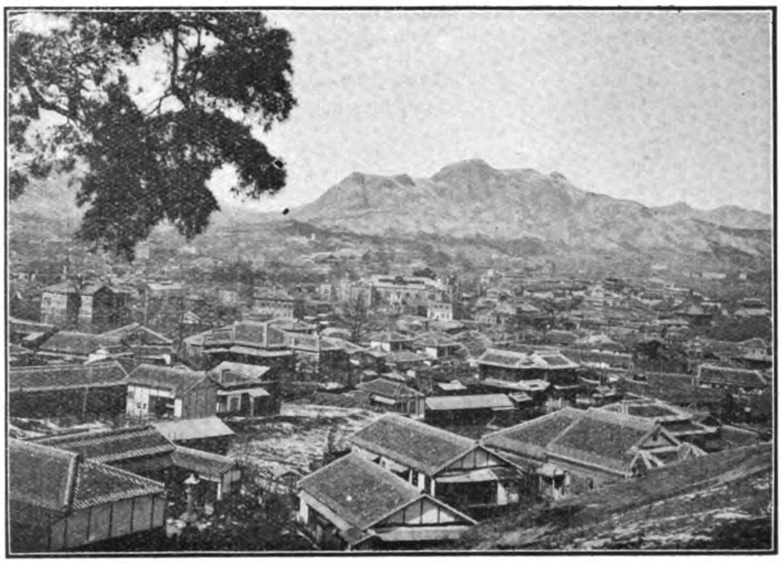
Receipts relating to traffic in the year amounted to *Yen* 6,817,263 and expenditure to *Yen* 5,974,395, leaving a balance of *Yen* 852,868



Fusan Pier where Connexion is Made by Steamer for Shimonoseki and the Japanese Railways



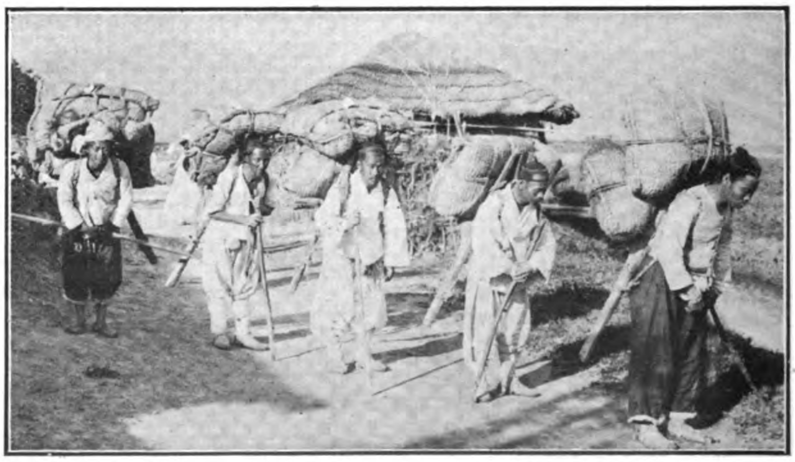
Bridge Across the Yalu River where Connexion is Made with the Antung-Mukden Line



View of Seoul (Keiyjo) from Near Administration Offices of the Government

Offices of Oriental Development Company—Seoul Has Many Such Handsome Buildings

Pavilions Attached to the Shokotu Palace—One of Many Points of Interest



Korean Coolies with Tripod Carrying Device Which Enables Them to Rest Under Their Loads

as profit. Compared with figures of the preceding year, the increase in receipts was *yen* 1,059,145, that in expenditure *Yen* 840,228, and that in profit *Yen* 218,917.

In the Railway Store Account, the earnings amounted to *Yen* 5,308,308 and the disbursements to *Yen* 5,307,143, leaving a balance of *Yen* 1,165.

The value of contracts in the purchase of railway stores amounted to *Yen* 4,662,731, being a decrease of *Yen* 742,278, as compared with the previous year.

The capital invested in the railways since the commencement of their construction up to the end of the previous year totalled *Yen* 105,076,992. Adding to this the sum of *Yen* 9,643,424, the increase made during the year, the total capital invested up to the end of the year under review reaches *Yen* 114,720,386.

The members of the Relief Association numbered 4,393 at the end of last year; adding 1,376 newly admitted and deducting 1,057 withdrawn during the year, the number at the end of the year was 4,712. The receipts totalled *Yen* 74,237; of this amount *Yen* 26,083 was the grant made by the Government, *Yen* 42,359 represented subscriptions from members, and *Yen* 4,795, interest on deposits. The disbursements totalled *Yen* 28,528; of this amount *Yen* 7,265 was the grant made in regard to injuries, *Yen* 10,864, for deaths, *Yen* 4,333 for medical allowance, and *Yen* 6,066, the amount refunded to members resigning. The number of persons to whom grants were made reached 1,188. A sum of *yen* 133,867, made up of *yen* 45,709, the balance at the end of the year, and *yen* 88,158 transferred from the previous year's account, was carried forward to the account for the year following.

Light railways and tramways in Chosen in operation at the end of the year were six, namely, the systems operated by the Nikkan Gas Electric Co. and two other companies, and three operated as private concerns. The aggregate capital of these light railways and tramways totalled *yen* 9,876,600, of which amount *yen* 4,819,149 was paid up, while the amount invested in them reached *yen* 2,169,855. The mileage open to traffic totalled 22.3 miles, consisting of 14.6 m. of electric tramway in Keijyo, 5.8 m. of light railway between Fusanchin and Torai in Keishonando, 1.2 m. of manual tramway in Heijyo and 0.7 m. of manual tramway for goods between Wakan railway station and Rakutoko. The mileage to be opened hereafter amounts to 150.3 miles, namely, 7 m. of electric tramway in Fusan-fu, 115.2 m. of light railway between Torai and Keishu, Keishu and Hoko, and Urusan and Choseiho, 16 m. of light railway between Riri and Zenshu in Zenrahokudo and 12.1 m. of the same between Seishin and Ranan in Zenshu Kankyohokudo.

RESULTS OF TRAFFIC.

The average working mileages were 802.9 m. in passenger traffic and 797.3 m. in goods traffic. Train mileage amounted to 3,015,987 miles, that of carriages to 9,449,727 miles, and that of wagons to 15,246,710 miles. The number of passengers carried amounted to 4,399,022, while the passenger mileage reached 165,034,551 miles. The tonnage of goods amounted to 1,105,362 tons, while the ton mileage reached 100,282,500 miles. Receipts from passengers amounted to *Yen* 3,545,225 and that from goods, to *Yen* 2,281,743, making a total of *Yen* 5,826,968.

The above results obtained during the year show increases of 93.9 miles in passenger traffic mileage in consequence of extension of the Kei-Gen and Konan lines and reconstruction of sections along the Kei-Gi line, 88.4 miles in goods traffic mileage, 30.7 per cent. in train mileage, 41.6 per cent. in car mileage, 14.7 per cent. in wagon mileage, 81.1 per cent. in number of passengers carried, 57.2 per cent. in passenger mileage, 4.0 per cent. in tonnage of goods, 10.9 per cent. in ton mileage, and 18.4 per cent. in total traffic receipts, being increases of 30.6 per cent. from passengers and 3.2 per cent. from goods, as compared with the figures for the preceding year.

These fine results, which we have not hitherto obtained, are mostly due to the decrease in passenger and goods fares, the natural increase in passengers and goods consequent upon various developments in Chosen, the closer relation between Chosen and Manchuria in consequence of the completion of the bridge over the Yalu, and the various other improvements in traffic arrangements.

In passenger traffic, the great reduction made in the fare by fixing it in proportion to the distance, instead of decreasing mileage rate with increase in distance as heretofore practised, induced natives of the lower class to go by train instead of on foot as was formerly their custom, and greatly increased the number of short distance passengers; the great transportation of troops, both relief and time-expired, and that of tourist parties, as well as the considerable number of visitors carried by train to view the cherry blossoms at Gyujido on the Kei-Gen line, the plum blossoms at Kaijyo, and on excursions to Suigen, are also worth mentioning, as they greatly assisted in bringing about the fine results attained in our traffic. Again, though we experienced more or less depression in traffic on account of rains during the summer, it was not so great as it might have been as a large number of school boys going for their holidays, soldiers, and military officials travelled over the lines. The sale of return tickets at reduced rates to people going to the open air bathing place at Jinsen under the auspices of the "Keijyo Nippo" (newspaper), and the annual meeting of the Presbyterian Churches held at Heijyo in late summer also helped very much to make our traffic prosperous.

We may say that autumn is the most enjoyable season of the year in Chosen, and we had especially fine weather during last autumn, which naturally induced many tourist parties to move; the migration of Koreans to Manchuria likewise added greatly to the number of passengers carried. Though we always experience a decrease in passengers during the winter on account of the severe cold, we transported a portion of the army stationed in Chosen as relief, and in March, with the advent of warmer weather, we had a conspicuous increase in passengers together with transportation of relief and time-expired soldiers, as well as greater numbers of emigrants, parties of whom had been constantly leaving Chosen since the previous autumn, to the region along the upper course of the Yalu. The sale of return tickets to people going to market, in force since March 1, was another factor contributing to our success; besides, we cannot ignore the increase of Japanese entering Chosen during the year.

Thus the results of passenger traffic during the year were excellent, showing 563 passengers per day per mile and *Yen* 12.10 in receipts, being increases of 158 in passengers and *Yen* 1.64 in receipts, as compared wilh the previous year. The reduction in passenger fare resulted in the decrease of *Yen* 0.42, showing *sen* 1.97 in average fare per passenger per mile. The average mileage per passenger showed 37.5 miles and the fare per passenger *Yen* 0.74, being decreases of 5.7 miles in mileage and *Yen* 0.29 in fare as compared with the corresponding figures of the preceding year; all this is doubtless the result of increase in short-distance passengers.

The goods traffic does not show up so well in results as the passenger traffic, merely on account of a conspicuous decrease in the transportation of railway articles; in that of public goods we did quite as much as in other years. On the other hand the revision in the goods tariff in July, together with that in the passenger tariff, was put into force to encourage the development of general industry in Chosen, though with the expectation of a decrease in receipts from goods, but the result was quite otherwise, and the increase in goods for transportation not only offset the anticipated decrease in receipts but even showed some increase in it. A classification system was inserted in the revised goods tariff regulations, and not only was the reduction in freight charge and terminal fee made, but the section for decreasing the rate according to the distance was expanded, all of which caused increase in the goods for transportation. Our earnest endeavour to induce transportation of goods by rail gradually began to bring forth fruit at the same time. Moreover the joint transportations with other lines and the steamship line became more promising as we made an extension in the section for the former and a new agreement was made with the latter.

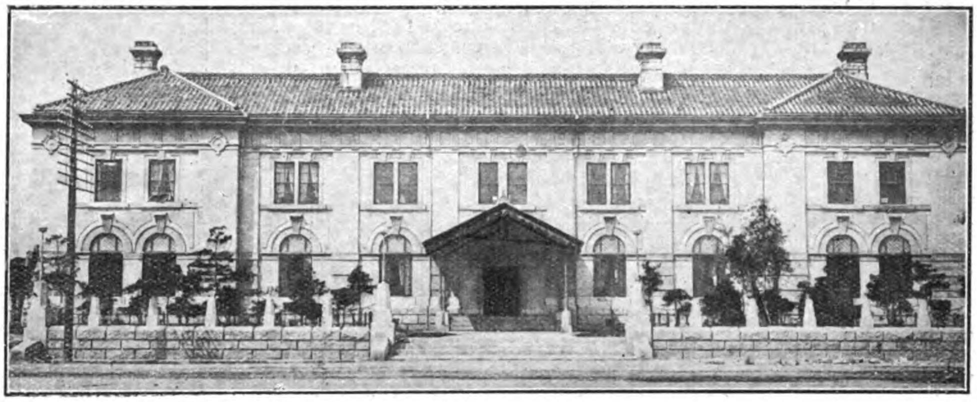
With reference to the transportation of important goods, we may say that the rise in price, in Japan, as well as the favourable arrangement for a special reduction in freight charge for goods arriving at Fusan, Soryo, Kunsan, Jinsen, Chinnampo, and Shingishu from stations over 195 miles distant from these ports, greatly increased the quantity of goods destined for Japan; besides, the demand for Manchurian millet by the Korean people gradually increased on account of the higher price of rice in Japan, and the importation of the above from Manchuria was unceasing; these causes greatly helped to bring about the result of 178,000 tons in grain carried over the lines, some 30,000 tons more than in the previous year.

The transportation of coal over our line greatly increased, too, and reached about 167,000 tons as the consequence of a development in the business of the Heijyo Mining Office (about 70 per cent. of the amount being consigned from Heijyo) and the incoming of Fushun coal into Chosen. In regard to salt, the demand for refined salt from Jinsen became much wider, extending to Nansen in the north and to Mitsuyo in the south, and reached about 17,000 tons in the total transported; besides, the transportation of salt from Fusan, Shuan, Kokei, Heitaku and Kiho was very brisk and reached about 30,000 tons. As regards building materials, their transportation increased greatly, reaching about 66,000 tons in lumber, about 13,000 tons in bricks, tiles and earthern pipes, and about 6,000 tons in lime and cement. Besides, the transportation of other articles such as tobacco, salted dried fish, firewood, charcoal, vegetables, and sugar was more than in the previous year. As the rise in the market price of rice had brought about a difficulty in living among the Koreans and consequently diminished their purchasing ability, it resulted in the fall of demand for spun thread (cotton), linen, hemp, cloth, furniture, etc.

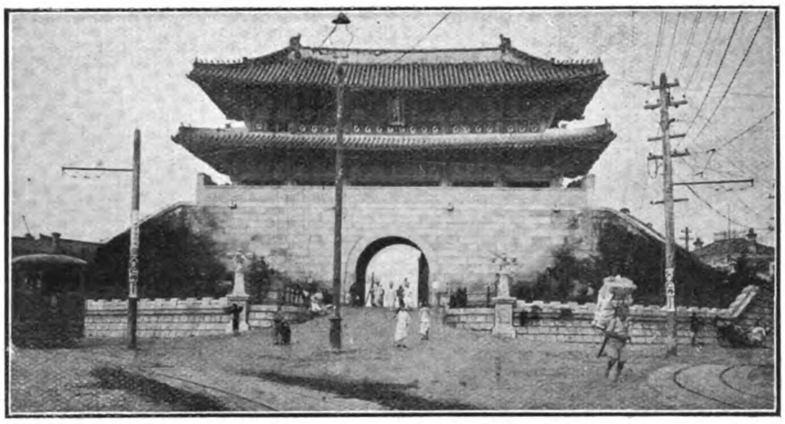
In the conditions above mentioned, the average tonnage per mile per day was 345 tons and their receipts, *Yen* 7.84, being a decrease of 4 tons in tonnage and of *Yen* 0.67 in receipts compared with the preceding year. As the result of reduction in goods tariff, the average rate per mile per ton was *sen* 2.08, being a decrease of *sen* .06 on that of the preceding year. In long-distance transportation, the average mile per ton showed 90.7 miles and the receipts *Yen* 1.88, being increases of 5.6 miles and *sen* 6 respectively over the preceding year.

The results of the passenger and goods traffic according to the different lines are as follow:—

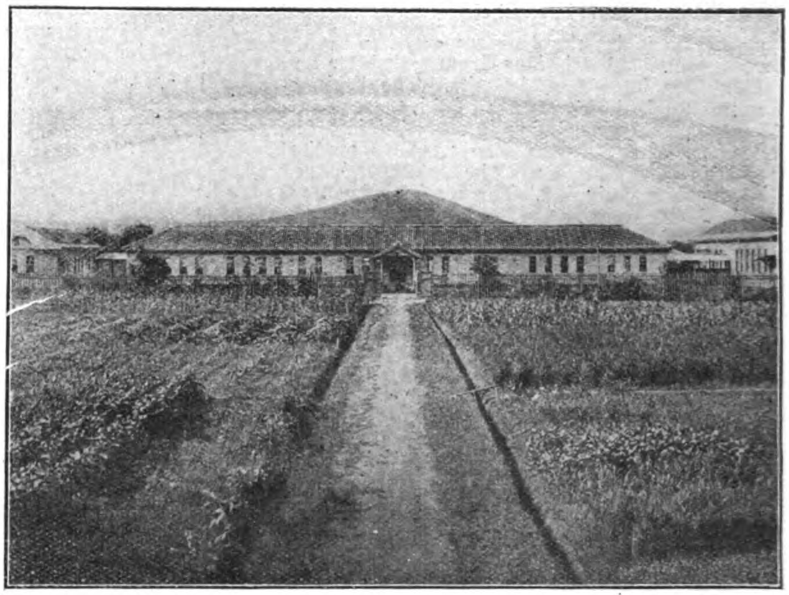
	Passengers				Goods			
Line	Av. Traffic Mileage	No. of Passengers	Coaching Receipts	Av. Receipts Day-Mile	Av. Traffic Mileage	Tonnage of Goods	Goods Receipts	Av. Receipts Day-Mile
	Miles		*Yen*	*Yen*	*Miles*	*Tons*	*Yen*	*Yen*
Kei-Fu.........	318.1	2,734,991	2,082,752	17.94	318.1	619,403	1,231,749	10.61
Kei-Gi.........	360.8	1,432,193	1,190,650	9.04	355.2	460,488	919,854	7.19
Kei-Gen......	44.2	190,169	90,380	5.61	44.2	79,127	56,128	3.48
Konan.........	79.8	381,826	181,443	6.23	79.8	127,799	74,012	2.54



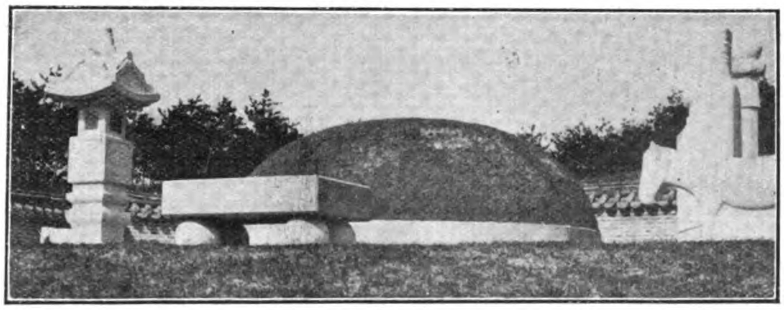
Bureau of Communications of the Korean Government



Nandaimon--The Great South Gate—Seoul

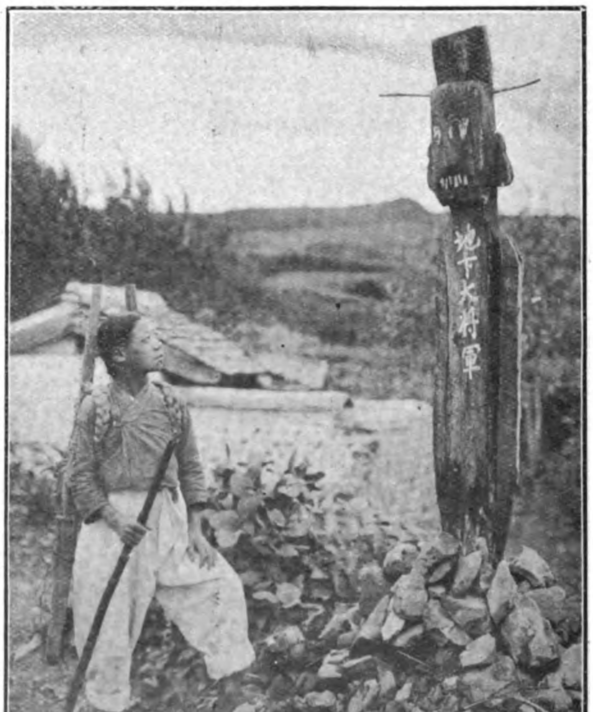


School Attached to Korean Agricultural Station



Tomb of Late Queen of Korea—Seoul

Korean Weavers and Spinners



Korean Pilgrim at Wayside Pagan Shrine

RESULTS OF LOCOMOTIVE WORKING.

The mileage of locomotives on all the lines during the year was 3,487,057.7 miles and the converted mileage of cars was 23,126,403.8 miles, while the coal consumed for running amounted to 179,179,947 *kin* and the oil to 73,703.55 *sho* (excluding that for air pumps and lamps).

The following are the results of locomotive working on the different lines, details of which are given in the tables annexed.

LINE	Locomotive Mileage	Converted Car Mileage	Coal consumed for Running	Oil consumed for Running
	Miles	*Miles*	*kin*	*sho*
Kei-Fu..................	1,864,562.1	12,261,462.6	99,144,237	41,434.35
Kei-Gi	1,353,442.4	9,730,562.4	68,714,300	27,138.40
Kei-Gen	75,882.2	387,337.7	3,559,210	1,344.25
Konan	193,171.0	747,041.1	7,762,200	3,786.55

INCREASE AND IMPROVEMENTS IN ROLLING STOCK.

The following increase was made in rolling stock during the year under review:

	Description	Number	Manufacturers	Remarks
Locomotives	6 wheels coupled, double ender tank	5	Borsig Works, Germany	Arrived during last year.
Carriage	3rd class	12	Ryuzan Works	
Wagons	Covered	65	ditto	
Wagons	Open, with 2 side boards	8	ditto	With hand brake
Wagons	Open	43	Soryo Works	10 of the number with brake

N.B.—Six 1st & 2nd class composite cars, and twelve 10 wheeled tender engines from America, are now in course of erection at our Ryuzan Works and are expected to be finished during the year following.

Rolling Stock and Steamboats

Rolling stock and steamboats at the end of the year included 138 locomotives, 209 carriages, 1,445 wagons, and 2 steamboats, being increases of 5 locomotives, 18 carriages, and 110 wagons over the preceding year.

Locomotives at End of Year.

ENGINES	ITEM	Number	Tonnage	Increase or *Dec.* against preceding Year
Tank Engines	6 wheel coupled (8 wheels)...	4	133.80	—
	6 wheel coupled (10 wheels)...	84	4,200.00	5
	Total	88	4,333.80	5
Tender Engines	4 wheel coupled (4 wheels).	2	87.58	—
	4 wheel coupled (8 wheels).	6	516.00	—
	6 wheel coupled (10 wheels).	30	3,053.40	—
	6 wheel coupled, compound cylinder (10 wheels)......	6	648.12	—
	8 wheel coupled (10 wheels).	6	600.00	—
	Total	50	4,905.10	—
Grand Total	....	138	9,238 90	5

N.B.—Ratio per 100 open miles is 10.51 of tank engines and 5.97 of tender engines, and 16.49 in the total.

Carriages at End of Year.

ITEM KIND 4 wheeled bogies	No.	Seats: Din. Room & Berths	Seats: 1st class	Seats: 2nd class	Seats: 3rd class	Seats: Total	Capacity	Inc. or *Dec.* against preceding Year: Number	Inc. or *Dec.* against preceding Year: Passengers	Ratio per 100 open Mileage: Number	Ratio per 100 open Mileage: States
Special Car...............	1	—	27	—	—	27	—	—	—	.12	3.23
Private Car...............	3	—	74	—	—	74	—	—	—	.36	8.84
1st Class with Sleeping Berths	4	B. 48	124	—	—	172	—	—	44	.48	20.55
1st Class with Dining Room..................	4	D. 48	96	—	—	184	—	—	—	.48	21.98
1st and 2nd Class Composite..............	9	—	252	330	—	582	—	—	—	1.08	69.53
1st and 2nd Class with Kitchen................	2	—	48	68	—	116	—	2	116	.24	13.86
2nd Class Cars..........	4	—	—	312	—	312	—	—	—	.48	37.28
2nd Class Cars with Kitchen....	4	D. 88	—	88	—	176	—	4	176	.48	21.03
2nd & 3rd Class Composite	31	—	—	802	1,906	2,708	—	2	208	3.70	323.54
3rd Class Cars..........	78	—	—	—	7,518	7,518	—	8	832	9.32	898.21
3rd Class Cars (small type).............	6	—	—	—	408	408	—	—	—	.72	48.75
3rd Class Cars with Kitchen..............	8	—	—	—	568	568	—	—	—	.96	67.86
3rd Class and Mail Composite..	4	—	—	—	192	192	6,272	—	—	.48	22.94
3rd Class Mail and Brake Composite...	3	—	—	—	72	72	6,711	—	—	.36	8.60
Mail and Brake Composite..................	10	—	—	—	—	—	14,000	6	—	1.19	—
Mail, Luggage and Brake Composite..	10	—	—	—	—	—	29,638	—	—	1.19	—
Luggage and Brake Composite............	26	—	—	—	—	—	64,072	—	—	3.11	—
Carriage for Official Use	2	—	—	58	—	58	—	—	—	.24	6.93
Total	209	R. 49 D. 176	621	58 1,600	10,664	13,167	121,593	18	1,056	24.07	1,573.12

Workshops

Workshops in the year numbered three, namely, Soryo, Ryuzan, and Heijyo workshops; the average number of artisans and workmen employed per day was 1,463.39, the aggregate of the daily numbers reaching 463,879.34 and the wages totalled *Yen* 345,173.42.

Principal items of building and repair were the building of twelve 3rd class passenger cars, sixty-five covered wagons, and fifty-one open wagons, and the repairing of 165 locomotives (33 being trivial repairs only),369 carriages, and 1,045 wagons. In erection work, five locomotives newly bought and 314 spans of girders may be mentioned. Conversions made were four 1st and 2nd class composite carriages with berths into 1st class carriages with berths, two 1st and 2nd class composite cars with kitchen and two 2nd and 3rd class composite cars into 2nd class cars with dining room, four 3rd class cars into 2nd and 3rd class composite cars, and six covered wagons into mail and brake vans. New equipments made were those of steam brakes to 14 locomotives, electric lights to 90 carriages, three water-closets to three carriages, guard-boxes to eight open wagons, and steam train pipes to 12 coal cars and 74 open wagons. Replacing of couplers in 63 wagons may also be mentioned.

In addition, windows were inserted in covered wagons for use in transportation of soldiers; 5 locomotives, 6 carriages, and 68 wagons were taken to pieces and packed for conveyance to Mokpo and Gensan, some of which were again set up in those towns during the year.

Details of building and repairs are given in the table annexed.

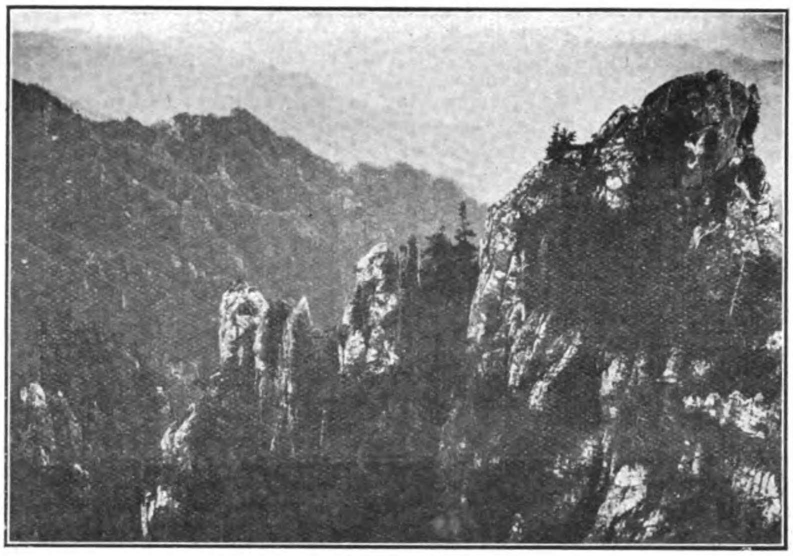
New arrangements at Soryo Workshop were the construction of a new line for shop use in the compound, a new equipment of electric lights (not under our own management), and a new workshop for examination and repair of electric lights in carriages. The horse power in use at the end of the year was supplied by four engines aggregating 170 h. p.

At Ryuzan Workshop, the building of the machine and erecting shops was finished and 41 sets of machines were removed from the temporary shops and set up in the new shops. The manufacture and fixing of twenty-eight spans of 20 ft. girders for overhead cranes were also completed, and are ready for work as soon as the cranes are purchased. Besides, a set of steam hammers in the smith's shop, a set each of electric fans and jib-cranes in the machine shop, and a dry kiln in the carpenter's shop were installed. The fixing-up of a goliath crane in the erecting shop and two sets of air compressors newly bought in the boiler shop is now under way. The motive power in use at the end of the year was supplied by two dynamos of 225 k. w. (one kept for emergencies), sixteen sets of motors of 6.49 h. p. in all, and two sets of air compressors of 90 h. p.

Construction and Improvement

Kei-Fu Line.—The construction of bridge No. 2 over the R. Kan and the building of a dormitory and boarding house in Nandaimon Station compound, continued from the previous year, were finished; the planking of bridge No. 1 over the Kan, the construction of line No. 2 between Roryoshin and Ryuzan, and the installation of the interlocking arrangement at Nandaimon Station compound were also done during the year. The construction of a new shunting line at Nandaimon Station is now under way. Roofs over the platform from the main building to the pier at Fusan, as well as official houses and the dormitory there, were likewise completed.

As regards improvement work, repairs done to the retaining stone walls along the line in the Sanroshin-Mitsuyo section and to those in the cutting along the Seido-Keizan section, and the construction of retaining stone walls for the line along the Shogen-Shinei section were all finished; about two-tenths of the body work of bridge No. 2 over the Kan as well as the embankments at the two ends were done, besides the taking up of the improvement work



Lion Peak of Diamond Mountains.

Ancient Pavilions on River Daido.

Wagons at End of Year.

ITEM	Capacity				Total		Inc. or *Dec.* against preceding Year		Ratio per 100 Traffic Mileage	
KIND	10 ton	14 ton	22 ton	26 ton	No.	Tons	No.	Tons	No.	Tons
Covered Wagons										
Wagons	—	—	20	71	91	2,286	—	8	10.87	—
Ditto with Air Brake	—	—	—	295	295	7,670	65	1,690	35.24	—
Ditto with Hand Brake	—	—	8	10	18	436	*6*	*104*	2.15	—
Goods Brake Vans	—	—	12	24	36	888	—	16	4.30	—
Cattle Trucks	—	—	24	—	24	528	—	48	2.87	—
Total	—	—	64	400	464	11,868	59	1,658	55.44	1,410.75
Open Wagons										
Wagons	—	—	270	272	542	13,012	51	1,326	64.76	—
Coal Truck	—	—	15	78	93	2,358	—	—	11.11	—
Small Type Trucks for Construction Use	342	—	—	—	342	3,420	—	—	40.86	—
Total	342	—	285	350	977	18,790	51	1,326	116.73	2,244.92
Water Tank Cars	—	4	—	—	4	56	—	—	.48	6.69
Grand Total	342	4	349	750	1,445	30,654	110	2,984	172.64	3,662.37

on foundations for piers Nos. 4, 5 and 9 of the same bridge.

Kei-Gi Line.—The construction of the erecting and machine shops and the Bureau offices in Ryuzan Station compound, as well as the extension of sidings at every station on the line and other new arrangements at different stations, which have been continuously going on since last year, were finished; the installation of interlocking arrangements in Ryuzan Station compound was also completed. The building of a temporary station at Mochuri, alterations to Hakuba Station, removal of the auxiliary building of the Railway School, and the renewal of official houses at Kosui and Seikei Stations are now in hand.

The rebuilding of temporary bridges over the Togun, Indo, Sei, Mokpo, Taiho, Nikkachi, and of No. 2 bridge over the Shadoho, and the enlarging of open culverts along the Heijyo-Chinnampo branch line, all of which have been in the course of construction since last year, were all finished. Enlarging work at every station, as well as the Wharf at Chinnampo, is now being done.

In improvement work, the construction of flood openings for the Seisen and Dainei Rivers in the Shinanshu-Reibi section, rebuilding of the bridges over the Genren and Eitaku, that of the bridge over the Ryusanri in the Junan-Gyoha section, the raising of the formation level at the approach to Ryusanri bridge as well as in the Chinson-Koshu section, the foot protection work of the piers of Shankyosen bridge in Hiken-Hakuba section, repairs to the cuttings along the Dojyo-Keisei section and the construction of side drains along the Seiho-Junan section besides some arrangements in Ryuzan Station compound and other minor works were all done.

Kei-Gen Line.—This being a new line of 138.4 miles between Ryuzan and Genzan, the whole route was decided upon during the year. The construction work has made conspicuous progress since its commencement in October, 1910, and the Ryuzan-Tetsugen section of 60.8 miles in length is already open to traffic. As to the remaining part, earth and bridge works

Market Day at Taikyu.

Buddhist Temple in Yutengi, Diamond Mountain.

ANCIENT PAVILIONS AT SUIGEN.

BIRDSEYE VIEW OF SEOUL.

of the Tetsugen-Sempo section from the Ryuzan end were nearly finished, and earth work, bridges and laying of rails were completely finished throughout the Genzan-Nanzan section (13.6 m.) from the Genzan end, while work on other sections is now going on. Following are general remarks on the route selected and the construction of the line.

Routes: The Sempo-Kozan section starts at a point about a mile southwest from Dojodo in Heiko-gun, Kogen-do (92.8 from Ryuzan), runs northeast across the plateau of Dojo, meets the upper course of the R. Sanbo, runs along the river down to Kokushido, enters Ampen-gun in Kankyonando, passes through Sanbo, Shosuido, Chukatai and Saisen, then enters Shinten, turns to the left away from the river and reaches a point about 3 miles southwest from Kozan (109.7 m. from Ryuzan). This section has 14 tunnels (11,149 ft. in all), and 19 bridges (4,217 ft. in total length) over the Sanbo, while its highest gradient is 1 in 40 and the sharpest curve, 15 chains in radius.

Construction: Though 19.8 m. of the Ryuzan-Giseifu section had been finished and opened to traffic during the previous year, the raising of the formation level of a portion 9 miles from Ryuzan is now in hand to guard the track against recurrence of floods, and a goods platform was built on the bank of the Kan at a point 2 m. 47 ch. from Ryuzan.

As for 26.4 miles of the Giseifu-Rensen section, earth and bridge works had been finished during the previous year with the exception of the bridge over the Kannanko. The last piece of bridge work was done and the rails laid in the early part of the year; then the stations, official houses, etc., were built and the section was opened to traffic in July, 1912.

Of the Rensen-Heiko section which was in the course of construction during the previous year, 28.8 m. was opened to traffic in October on the completion of earth and bridge work, the laying of rails, and the building of stations and official houses.

The work on the Heiko-Sempo section of 17.8 m. was taken up in May, 1912; the excavation of headings of Kenfutsuro tunnel No. 1 (759 ft.) was finished in September, while the arch and side walls are now in the course of construction; the excavation of the headings of Kenfutsuro tunnel No. 2 (2,112 ft.) reached 2,023 ft. and about seven-tenths of the earth work and nine-tenths of the bridge work were done during the year.

The Sempo-Nanzan section (32 m.) runs along steep mountain sides and consequently has 14 tunnels (aggregating 11,149 ft.) and 35 bridges (5,618 ft. in all) and is considered to be the most difficult section on the Kei-Gen line in construction work. The work began in April, 1912, and about five-tenths of the earth work and about four-tenths of the bridge work were finished by the end of the year; as for the tunnels, with the exception of one, all the headings were excavated.

Work on the Nanzan-Genzan section continued from the previous year was completed during the year under review.

Laying of rails and running of construction trains: Following the progress of earth works and others, the rails were laid for 86 m. 74 ch. (to Kenfutsuro) on the Ryuzan side and for 13 m. (to Nanzan) on the Genzan side.

Building works: Along the Giseifu-Rensen section the main buildings for the stations at Tokutei, Todosen, Zenkoku and Rensen, which have been in the course of construction since last year, were finished. Official houses and a dormitory at Rensen, official houses at Todosen, and a dormitory at Tokutei were built. Along the Rensen-Heiko section the dormitories at Gesseiri and Heiko were finished, while the main buildings at Daikori and Tetsugen, and a dormitory at Tetsugen were finished, too. The erection of main buildings and official houses at Heiko and Gesseiri as well as official houses at Daikori was taken up. On the Heiko-Sempo section, official houses and a dormitory at Fukkei were built, while the erection of more official houses, a dormitory and a temporary locomotive shed was taken in hand.

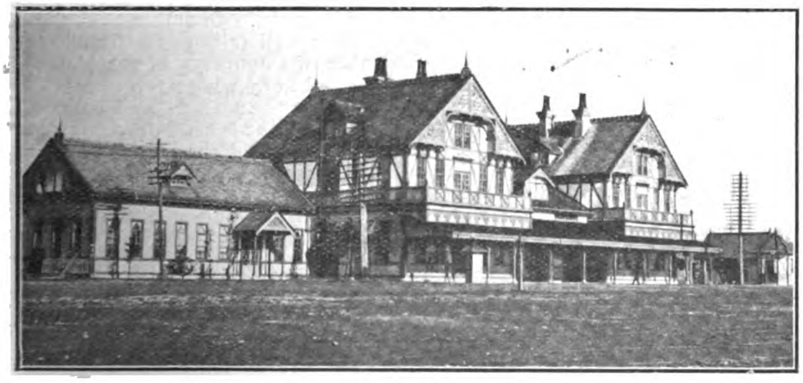
As regards electric lines, one telegraph line along the Tetsugen-Heiko section, two along the Heiko-Sempo section and one along the Sempo-Nanzan section were constructed and the through communication between Ryuzan and Genzan has been effective since October, 1912. Besides, one block line on the Giseifu-Tetsugen section, two signal repeater lines in Rensen Station compound, two telephone lines along the Heiko-Sempo section, one telegraph line along the Giseifu-Tetsugen section, three telephone lines along the Sempo-Nanzan section, and one telephone line along the Nanzan-Genzan section were constructed.

Konan Line.—This is a new line (161.3 m.) running to Mokpo from Taiden with a branch to Kunsan (14.8 m.). The work has made conspicuous progress since its commencement in October, 1910, and the Taiden-Seiyu section (81.9 m.) and the Riri-Kunsan section (14.8 m.) are already completed and open to traffic. Five-tenths of the tunnel work on the Seiyu-Shigairi section and eight-tenths of other works from the Taiden end, and the Mokpo-Kakkyo section (22.3 m.) from the Mokpo end have been completed, while the remaining work is in progress. The improvement work on 2.3 miles of the track, near Kasuiin River Bridge No. 2, of the Kasuiin-Tokei section was taken up in October, being found necessary after our experience of the two preceding years. The following are some details of the work.

Regarding the Riri-Kintei section (11.5 m.) the construction of which has been in progress since last year, the earth and bridge works were finished in May, the laying of rails and building of various structures in October, and the section was then opened to traffic.

The Kintei-Seiyu section (15.7 m.) which was taken up at the end of the last fiscal year was opened to traffic in December, after the completion of earth and bridge works in September and of various other works later on.

Work on the Seiyu-Shigairi section was taken up in December, 1911, and the headings of Rorei tunnel No. 1 (1,056 ft.) were excavated in July and the arch and side walls were



RAILWAY STATION AT RYUZAN.

CHOSEN HOTEL AT SEOUL.

completed. 2,855 ft. of Rorei tunnel No. 2 (3,102 ft.) was excavated and work on the arch and side walls taken up; about eight-tenths each of the earth work were finished during the year under review.

Work on the Shigairi-Rinkoku section (15.7 m.) was taken up in November, 1912, and though about four-tenths of the earth work was done, no other work worth mentioning was done during the year.

Work on the Rinkoku-Rashu section (16.9 m.) was taken up in October, 1912, and about seven-tenths of the earth work and four-tenths of the bridge work were done during the year.

Work on the Rashu-Kakkyo section (13.1 m.) was taken up in the beginning of this fiscal year, and about nine-tenths of the earth work and Kyushimpo tunnel (432.2 ft.) and the whole of the bridge work were done during the year.

Work on the Kakkyo-Mokpo section (22.3 m.) continued from the previous year was finished in February, 1913.

Accompanying the completion of earth and other works, the rails were laid, their length reaching 6 m. 40 ch. from Seiyu on the Taiden side and 28 m. 40 ch. from Mokpo.

The buildings, stores and official houses at Gunreiri and Furanri continued from the previous year were completed; various buildings necessary for traffic as well as official houses and dormitories on the Taiden-Seiyu and Riri-Kunsan sections were built, and in addition, the roofing of the platform and the transferring of the dormitory at Taiden Station compound, the building of official houses and a doctor's office at Riri, and the building of official houses at Shigairi were taken up during the year. On the Mokpo side, the addition of official houses and a dormitory at Mokpo, a dormitory at Kobakuin, temporary official houses and dormitory at Kyushimpo, official houses, etc., at Shoteiri and a temporary dormitory at Chojyo were finished, while the main buildings, goods platform roofs at Mokpo, Kakkyo and Rashu, locomotive shed and official houses at Mokpo, and official houses at Sankyo, Kakkyo and Rashu were taken up.

As regards electric lines, a block line along the Taiden-Shigairi and Riri-Kunsan sections, two telephone lines along the Rashu-Shigairi section and one more telegraph line along the Taiden-Mokpo section were constructed and communication opened the same year.

Accounts

Estimates and Settled Accounts Relating to Traffic and Profit and Loss Account.—The estimates of receipts and expenditure for the year relating to traffic amounted to *Yen* 7,334,904 and *Yen* 6,221,736 respectively, giving a balance of *Yen* 1,113,168 as profit, while the settled accounts of receipts and expenditure amounted to *Yen* 6,817,263.145 and *Yen* 5,964,395.380, giving a balance of *Yen* 852,867.765 as profit, which when compared with the estimated balance shows a decrease of *Yen* 260,300.235. Details of receipts and expenditure are shown in the table annexed.

Expenses for Construction, Improvement and Extraordinary Repairs.—The estimate for construction and improvement expenses for the year amounted to *Yen* 9,063,829.184, consisting of *Yen* 9,000,000, the fixed yearly amount, and *Yen* 63,829.184 brought forward from the previous year, while the settled account reached *Yen* 8,767,647.431, leaving a surplus of *Yen* 296,181.753 to be carried forward to the next year.

The expenses for extraordinary repairs amounted to *Yen* 617,089.256, consisting of *Yen* 592,302 of unestimated disbursement and *Yen* 24,697.256 brought forward from the previous year's account, while the settled account was *Yen* 612,882.511, leaving a balance of *Yen* 4,206.745 to be carried forward to the next year. Details of these two accounts are given in the table annexed.

Total Amount for Construction and Improvement and Yearly Disbursements.—The amount allotted for construction and improvement, previous to the fiscal year 1912, totalled *Yen* 63,696,058; the sum of *Yen* 1,907,334 allotted for that year makes the grand total of *Yen* 65,603,392. Details and yearly sum are shown in the table annexed.

Capital Invested.—The sum defrayed from the Government-General account of construction, improvement and extraordinary repairs during the year amounted to *Yen* 9,380,529.942; adding to it, *Yen* 105,076,961.664, the capital invested up to the end of last year, and *Yen* 262,894.544 defrayed for additional works from operating expenses, the total sum invested at the end of the year is *Yen* 114,720,386.15. Details are given in the table annexed.

Estimates and Settled Account relating to Receipts and Expenditure of Railway Stores Fund.—The estimates of the receipts and expenditure for the year were *Yen* 5,583,352 each, against which the actual accounts amounted to *Yen* 4,106,020.18 in receipts and *Yen* 4,414,389.59 in expenditure, leaving balances of *Yen* 1,477,331.82 in the former and *Yen* 1,168,962.41 in the latter, both showing a decrease. The details are shown in the table annexed.

Assets and Liabilities Relating to Railway Stores Fund:

Profit and Loss Account.

Assets

Item	Amount Yen
Cash	11,850.571
Stores	698,492.677
Workshop Account..	247,925.022
Total	958,248.270

Liabilities

Item	Amount Yen
Capital..	700,000.000
Receipts in Advance	257,102.590
Profits..	1,165.680
Total	958,268.270

Profit and Loss.

Loss

Item	Amount Yen
Railway Stores Expenses	4,414,389.590
Value of Stores transferred from previous year	635,650.539
Advanced Receipts carried forward	257,102.590
Balance transferred to Government-General Account	1,165.680
Total..	5,308,308.399

Profit

Item	Amount Yen
Receipts from Railway Stores..	4,106,020.180
Value of Stores carried-forward	946,417.699
Receipts in Advance from previous year	255,870.520
Total..	5,308,308.399

Purchase of Railway Stores.—The purchases made during the year amounted in all to *Yen* 4,462,730.82, showing a decrease of *Yen* 742,278.18 as against the preceding year. Purchases made by free contract amounted to *Yen* 3,967,264.38 and those of small amounts to *Yen* 495,466.44. The following are the quantities and cost of principal articles.

Rails and Accessories, miles 80, cost *Yen* 736,132.560; Sleepers (including long ones), 624,371, *Yen* 723,731.066; Coal, tons 105,123, *Yen* 602,457.450; Cement, barrels 186,400, *Yen* 512,257.500; Locomotives, 13, *Yen* 374,940.000; Timbers, lots 100, *Yen* 305,973.932; Metals, tons 2,197, *Yen* 165,991.350; Bricks, 6,806,000, *Yen* 114,628.000; Oils and Grease, *sho* 408,796, *Yen* 100,288.255; Wheels and Axles, lots 14, *Yen* 90,558.600; Electrical Articles, lots 276, *Yen* 86,029.753; Steel Girders, spans 28, *Yen* 51,412.000; Paint, etc., lots 45, *Yen* 23,877.213; Others, *Yen* 565,453.141; Total *Yen* 4,462,730.820.

Light Railways and Tramways

Sanction for construction of light railways and tramways was given, in the year under review, for light railways between Torai and Taikyu, Keishu and Hoko, and Uruzan and Choseiho, amounting to 115.2 miles, to the Chosen Gas Electric Co., for private light railways (for transportation of coal), between Seimenshinri and Manjyo, and Seimenshinri and Kisanri, in Heiannando, amounting to 9.1 miles, to K. Matsui, and for a light railway of 16 miles between Riri and Zenshu in Zenrahokudo to N. Koda and 28 other persons (Capital, *Yen* 350,000), making a total of 140.3 miles. On the other hand, the sanction for a light railway of 5.8 miles between Dori and Hoko in Kankyohokudo, given to S. Ishii and two others, was cancelled.

The open lines at the end of the year reached 22.3 miles and their capital amounted to *Yen* 9,026,600 in all, *Yen* 4,819,149 of the amount being paid up while the cost of construction was *Yen* 2,169,855. These lines belong to the Nikkan Gas Electric Co., Chosen Gas Electric Co. (gas and electric business transportation) and individuals (tramways in Heijyo and Waikan), and those not yet taken up though sanctioned, aggregate to 150.3 miles.

The Kannan and Kanhoku Light Railways (aggregating 88.2 miles of a gauge of 2 ft.) which belong to the Finance Department of the Army stationed in Chosen were constructed during the war in 1904-5 for the conveyance of military ammunition and provisions. Afterwards offices were established at Seishin and Kanko for the transportation of soldiers, officials, military provisions and materials. Besides, public transportation is allowed under contracts with contractors at Kanko and Seishin under the supervision of the offices.

AMERICAN CHAMBER OF COMMERCE

An enthusiastic assemblage of American business men was present in the Palace Hotel banquet room, in Shanghai on September 18, when the organization of the American Chamber of Commerce of China was completed by the adoption of constitution and bylaws prepared by a temporary committee appointed at a previous meeting and by the election of a permanent committee and officers. The following were chosen as committee:

Mr. Larz Anderson of Mustard and Company, Mr. C. H. Blake of the Standard Oil Company of New York, Mr. J. Harold Dollar of the Robert Dollar Company, Mr. F. A. Fairchild of the China and Japan Trading Co., Mr. J. W. Gallagher of the United States Steel Products Company, Mr. J. N. Jameson of Wisner and Company, Mr. J. H. McMichael of Frazar and Company, Mr. N. T. Saunders of Geo. H. Macy and Company, Mr. J. B. Southmayd of the Singer Sewing Machine Company, Mr. P. F. Wisner of P. F. Wisner and Company.

The following were elected officers for the ensuing term: President, J. H. McMichael: Vice-president, J. W. Gallagher; Secretary, P. L. Bryant.

Honorary membership as provided in the bylaws was conferred upon the American Minister at Peking, the Chargé d'Affaires, the Commercial Attaché, the Consul-General and Vice-Consul-General at Shanghai. Owing to the great interest shown by Consul-General Thomas Sammons, it was proposed that the bylaws be amended to permit his election as Honorary President of the Chamber.

As the Chamber will take steps to affiliate with the Chamber of Commerce of the United States, the national body whose recommendations have resulted in the passage by Congress of many measures for the benefit of American business, it is expected that the local Chamber will be of wide influence, working through the national organization, for a better understanding of conditions in China on the part of American manufacturers and others interested in Oriental trade.

The committee has already formed plans for an active canvass of Americans who are eligible with a view to enrolling every individual and firm or corporation, in addition to the large number that have already taken out membership in the Chamber. The temporary office of the Secretary is 5, Jinkee Road, Shanghai.

Chinese Visitors Use Trans-American Telephone

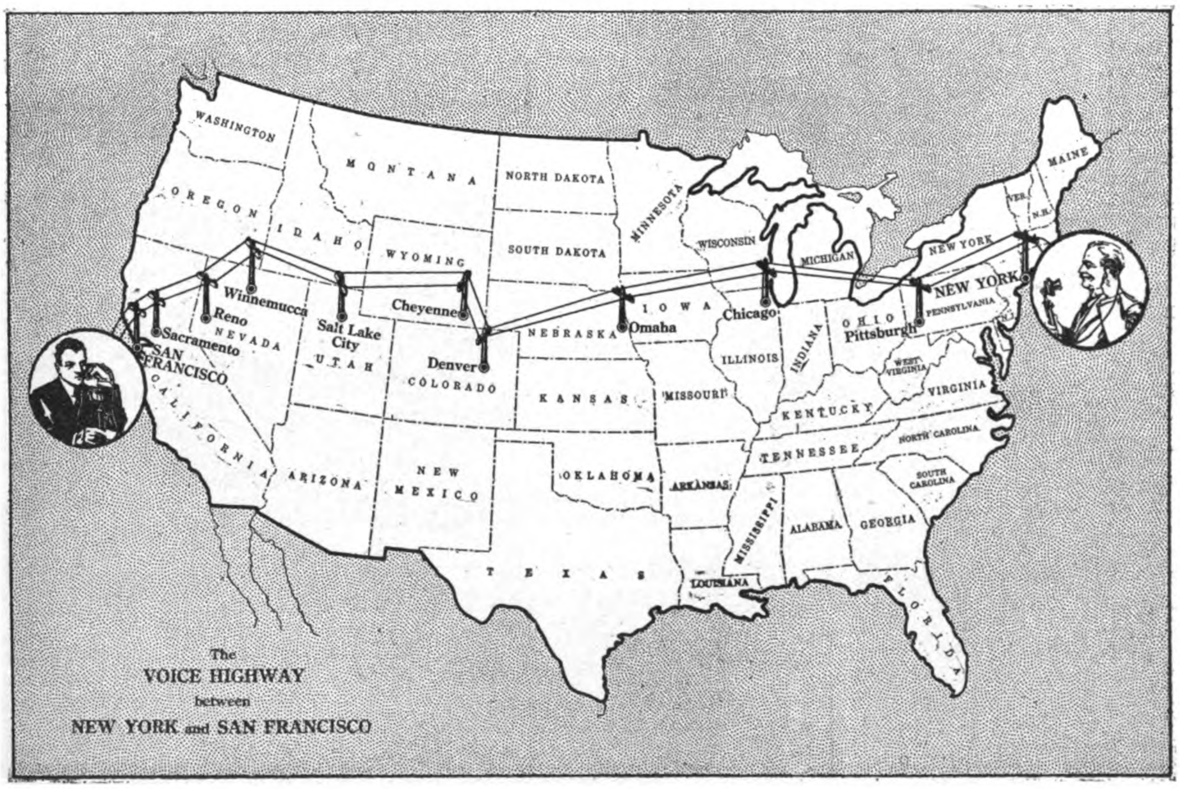
Among the first persons to use the new long distance direct telephone between New York and San Francisco were Messrs. Yingming Chang, Chi Cheh Nieh, David Yui, Chachsin Pian, S. C. Thomas Sze, and Chaichang Woo, all of the Chinese Commercial Commission party, who were entertained in New York on June 5th, by the Western Electric Co., during which, through the courtesy of the American Telephone and Telegraph Co., each of the gentlemen was given an opportunity of talking to San Francisco over the long distance line. Arrangements were made in San Francisco to have the Chinese Consul General and the Chinese Commissioner at the Exposition do the talking at that end of the line. No trouble was experienced during the several conversations and the gentlemen were probably quite surprised to find they could talk over the 3,400 miles with little more effort than over a local connection.

This interchange of spoken communication between the great metropolis of the West and the great metropolis of the East was proclaimed to the world as one dream of the telephone engineer that has been realized. It means direct speech between two points 3,400 miles distant, telephonically speaking, over wires that traverse mountains, valleys, deserts and lakes, a line whose direction involved the most difficult problems met with since the inception of the telephone in 1875.

In 1849, transcontinental travel consumed five months by stage coach. In 1859, by sailing vessel around Cape Horn it required three months to reach San Francisco from New York. Ten years later the railway abridged the distance to twenty days. The opening of the Panama Canal in 1914 made it possible to do the journey in sixteen days by steamship, while the beginning of 1915 shows a railway record of 71 hours and 27 minutes, with an average time of 90 hours. By transcontinental telephone line a man's voice and personality reach the far end in one-fifteenth of a second.

It is worthy of note that this transcontinental voice highway has been completed and given over to public service during the lifetime of Alexander Graham Bell, the inventor of the telephone, and it seems most fitting that he was the first man to talk over it to that other man, Thomas A. Watson, who, as Professor Bell's assistant, heard the first words ever spoken into a telephone.

To make ocean-to-ocean talk possible, it has been necessary to do a well-nigh perfect piece of line-construction work. The external evidences, poles and wires, important as they are in themselves, give only the faintest ideas of the years of ceaseless research and experimental work by the American Telephone and Telegraph Company that have resulted in this talk-link between West and East, an accomplishment representing the last word in telephone science. With this study has come the improvements in line construction, cable, receivers, transmitters, switchboards and all the other telephone apparatus needed to send the delicate electric voice currents over the 3,400 miles that separate New York and San Francisco and deliver them at either end undiminished in volume and undistorted.



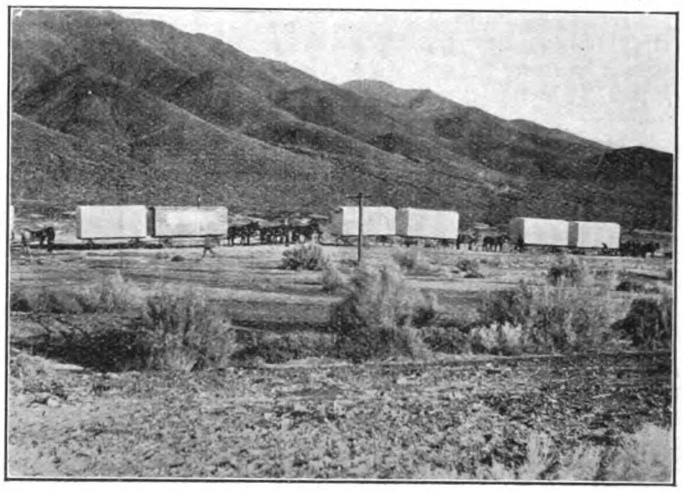
The VOICE HIGHWAY between NEW YORK and SAN FRANCISCO

An idea of the quantity of the line material used may be gained from the fact that there are four copper wires each 3,400 miles long and of No. 8 B.W.G. gauge, producing a total weight of 5,920,000 pounds or 2,960 tons. In the line itself there are 130,000 poles.

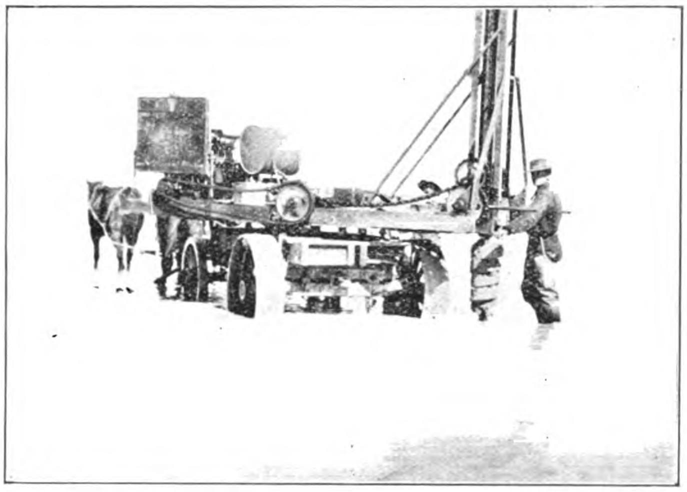
The Western Electric Company which supplied all of the line construction material and telephone apparatus used in conjunction with this transcontinental voice highway has issued an attractive folder showing a map of the line, views taken during its construction and reproductions of drawings and photographs depicting the opening of the first long-distance line between Salem and Boston, Massachusetts, in 1877, the line between New York and Chicago in 1892 and that between New York and Denver in 1911.

Constructing Voice Highway Across the United States

Surveying the Line



Construction Camp Moving



Boring Pole Holes in Humboldt Lake, Nevada

Hauling 18-foot Redwood Poles

Setting Pole in Humboldt Lake, Nevada

Setting Pole near Stone House, Nevada

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Chefoo-Weihsien Line.—The Chinese Chamber of Commerce at Chefoo estimates that the cost of the Chefoo-Weihsien railway will be about Tls. 10,000,000, without counting a branch line from Lungkow to Weihsien. Telegrams have been despatched to the various provinces regarding raising of funds and it is expected that Chinese merchants in Shantung and the Chambers of Commerce throughout the republic will subscribe. The Central Government probably will advance Tls. 5,000,000. Directors of the Chinese Chamber of Commerce at Chefoo are consulting the leading merchants at Chefoo, Tsinan, Chowtsun and other Shantung cities, to find out what amount they will subscribe. It is understood that the Government intends to make the line a semi-official one. Chinese reports state that the Chefoo Chamber of Commerce at first approached the leading British merchants of Chefoo but the Japanese opposed their participation on the ground that, if foreign capital is required for this railway, the preference must be given to the Japanese.

British Railway Concessions.—According to a London Dispatch Lord Robert Cecil, Under-Secretary of the Foreign Office, stated that no agreement existed with China regarding Railway development by British subjects or with British capital, though agreements signed with British syndicates were communicated to the British Legation in Peking. The Chinese had promised, he said, that certain railway concessions, for which a British subject was negotiating, whether granted to that firm or not, should be reserved for British subjects.

In view of the foregoing, the Japanese versions emanating semi-officially from Tokyo may be of interest.

The statement of Lord Robert Cecil in the House of Commons refers to the line between Nanchang and Canton. However, the British people are trying to secure a line between Hangchow and Nanchang and Wuchang also, which fact is worth noting. Lord Robert Cecil, the Under-Secretary of the Foreign Office, has stated in the House of Commons that certain railway concessions in China would be reserved for British subjects. This is believed to refer to the railway concessions which, it has been reported, Messrs. Pearson and Company had contracted for, namely the railway line between Canton and Nanchang. However the line between Kiukiang and Nanchang as well as that between Chaochowfu and Swatow are built with Japanese loans and it is not morally good to grant the line between these two railways to another foreign concessionaire, and it is argued by the press of Tokyo and diplomatic circles in Tokyo that the British Government will pay due respect to the position of the Japanese Government in the matter.

Shantung Railway Repairs.—The repair work of the Shantung Railway, which has been going on since last winter is now completed and the time occupied between Tsingtau and Tsinanfu soon will be shortened about an hour; Owing to a freshet which carried away the Railway bridge between Fangtzu and Tsoshan, July 27, the goods traffic was interrupted and the new schedule deferred.

Chinghsien-Dolonor Line.—According to a Consular report the Chinese Government is planning to construct a railway from Chinghsien to Dolonor. A party of officials from the Ministry of Communications has been sent to survey the projected line. It is said that the line will comprise a distance of 1,100 li, and that a certain foreign bank has offered to loan the funds for the construction.

Railway to Yunnan Mines.—Plans for a railway from Mengtze, Yunnan Province, China, to the Ko-chiu tin mines, are nearing fruition as the Chinese capitalists concerned in the tin mines have recently employed two French engineers in connection with the enterprise. The original plans and the actual location of the line were made by American engineers, who resigned several months ago. The plans call for a 60-centimeter track, and rolling stock estimated at 8 locomotives, 100 freight cars, and 15 passenger cars.

Canton-Kowloon Railway.—According to the annual report of the Kowloon-Canton Railway, British Section, presented to the Legislative Council, the general development of traffic on the railway, with additional locomotives and rolling stock, made the extension of the locomotive and carriage accommodation at Hunghom, a necessity. It was found that the present site was capable of expansion sufficient to serve for many years to come, a definite scheme was drawn up, and it was arranged to carry out only so much of it as was immediately necessary. These extensions include the re-arrangement of the tracks, and an order for the necessary points and crossings and permanent way has been placed through the Crown Agents. The gross earnings for the year were $364,608.32, as against $333,633.32, for 1913, an increase of $30,975. The working expenses amounted to $274,366.39, an increase of $28,557.81 due to the increased price of coal. The balance after paying working expenses stands at $90,241.93, or $2,417.19 more than the previous year. No accidents occurred during the year.

Canton-Hankow Railway.—The line at present is almost completed as far as Shiu Kwan (Chiu Chow), 140 miles from Canton, and it is expected that traffic soon will be opened with that place. The work of the last 20 miles has been delayed two years beyond the time originally planned on account of heavy rock cuts, tunnels, and troubles with the contractors. The revolution also caused considerable delay.

Beyond Shiu Kwan station the only work which has been completed is about 3 miles of grading piers for the bridge over the North River (East Fork) at Shiu Kwan, and part of a long tunnel about 12 miles beyond Shiu Kwan. It is not likely that the Kwangtung Yueh-Han Railway Co. will build any further unless it is decided to open the coal mines north of Shiu Kwan. Beyond Lok Cheong (170 miles from Canton) the line runs through rugged country, and will have no local traffic until Ping Shek, on the Hunan border, is reached. It is expected that the Government will take the line from Shiu Kwan to the Hunan border.

The construction of the line is of fair quality. Eighty-five pound rails of American, Belgian, and Hankow manufacture are used. Steel girders and trusses are nearly all from the American Bridge Co. and are of the best design and workmanship. Some of these articles, purchased from Europe, are of poor design, and one 200-foot span is very bad. The locomotives are products of the Baldwin and the American Locomotive companies. Last year five consolidated locomotives were purchased—three from the American Locomotive Co. and two from the Baldwin. The passenger cars are mostly of American manufacture, as are also the box cars, although some of the latter are of English construction. It seems likely that the short English cars will soon be rejected and that only the 8-wheel American cars of all classes will be used.

Some steelwork, such as tanks, turntables, warehouses, etc., has been imported from America, and much Oregon pine for false work, ties, etc., has been and is being purchased there, but these articles are usually placed by Japanese, German, or English firms, for the reason that the American manufacturers are not adequately represented at Canton.

The passenger traffic represents about 60 per cent. There is also a good business in the transportation of cattle, firewood, limestone, and other products, such as rice, tobacco, poultry, etc. Later on coal will be brought down, but as this is anthracite, it will be necessary to establish a market before it can be handled. Salt is sent over the line from Hunan and the upper North River districts. On the whole, the traffic is satisfactory, and a large increase is expected when the line reaches Shiu Kwan, but the railway can not be expected to pay well until it has been completed to Hankow or Shanghai, when it should be the most important section of the railway and the most profitable in China.

The line is well located, fairly well constructed, very well maintained, and should be profitable if well managed.

The country through which this railway passes produces mules, cattle, pigs, rice, lumber, coal and a considerable quantity of tobacco and poultry. At Ho Tow are large limestone hills, also many mines, some supposed to produce silver and gold.

Japan's Five Concession Lines.—The railway concessions acquired by Japan by virtue of the recently concluded Sino-Japanese treaty consist of five new lines, namely Changchun-Chaonan line, Chaonan-Jehol line, Ssupinghai-Chaonan line, Haiyuan-Hailung line and Hailung-Kirin line. On the conclusion of the detailed arrangements, the work of construction will start with part of the Ssupinghai-Chaonan line, extending for 52 miles between Ssupinghai and Tingchiatung. The construction fund is to be defrayed by the Yokohama Specie Bank and construction work will be taken up by the South Manchuria Railway Company. The next line to be constructed will be that between Haiyuan and Hailung.

Chinese Railway Mileages.—The mileage of the Tsin-Pu, Ching-Han, Peking-Mukden, Peking-Kalgan-Suiyuan and Shanghai-Nanking Railways are as under:—

Tsin-Pu Line, 682 miles including 54 miles of branch lines;

Peking-Hankow Line, 829 miles including 70 miles of branch lines;

Peking-Mukden Line, 603 miles including 79 miles of branch lines;

Peking-Kalgan-Suiyuan Line, 215 miles including 13 miles of branch line.

Shanghai-Nanking Line, 203 miles including 10 miles of branch line.

S. M. Railway Material.—The British Consul at Dairen has furnished the following statement showing the values of the railway

supplies purchased from foreign countries by the South Manchurian Railway Company during 1914; the figures for 1913 are added for purposes of comparison:—

		United Kingdom.	United States.	Germany.	Other Countries	Total.
Iron, steel, &c.	1914	27,519	11,651	—	6,032	45,202
	1913	48,185	1,854	583	442	51,064
Timber	1914	—	380	—	1,946	2,326
	1913	—	19,746	—	1,727	21,473
Machinery	1914	15,270	7,596	14,515	410	37,791
	1913	43,494	12,302	45,354	172	101,322
Rails and accessories	1914	5,401	—	—	10,970	16,371
	1913	2,564	5,247	5,457	378	13,646
Locomotive and rolling stock construction material	1914	9,266	3,765	94	—	13,125
	1913	24,317	27,260	12,978	2,756	67,311
Electrical apparatus	1914	601	655	32,417	128	33,810
	1913	7,132	280	14,139	135	21,686
Building materials	1914	1,025	399	—	—	1,424
	1913	14,341	7,678	803	—	22,822
Oils	1914	—	21,491	—	319	21,810
	1913	—	16,976	—	473	17,449
Sundries	1914	14,836	10,956	2,516	3,265	31,573
	1913	69,877	1,097	3,966	194	75,134
Totals	1914	73,918	56,893	49,542	23,070	203,423
	1913	209,910	92,440	83,280	6,277	391,907

(C.I.B. 29,780.)

S. M. Railway Doubles Track.—The South Manchuria Railway has received permission to double the track on the Suchiatun-Mukden Section on the Main Line. This construction work will extend over four years. The construction of a railway bridge for the second track over the Hun River is in progress.

S. M. R. Traffic Returns.—For the first time in the new fiscal year, the South Manchuria Railway's traffic returns have showed a decrease from the returns for the corresponding period of last year. The daily average for the first decade of the current month was Y35,568, being Y392 less than the figures for the same period of last year. The total traffic receipts from April to August 10th reached Y8,059,440.29 and the excess over the last year's earnings to the end of July was Y1,077,609.81.

Amur Railway Open.—Rails were joined at Oblutchye, and traffic opened on the western section of the Amur Railway, the first train passing through in March. The work of completing the line is progressing satisfactorily.

New Philippine Railroad.—A new railroad corporation, capitalized at P500,000, has been incorporated in Manila to build and operate a narrow gauge road in Occidental Negros, from the port of Pulupangdan to La Isabela, a distance of some 60 kilometers. The company, called "Ferrocarril Agricola Pulupangdan-Isabela," is the first ever organized by Filipino capitalists for a like purpose. The road will pass through La Carlota, La Rama, Zaragoza, La Granja, Danao, and Castellana. The company reserves the right to engage in general and agricultural and passenger transportation by rail, as well as to operate boats for sugar export from any port in Negros to Iloilo. The capital stock of P500,000 is divided into 2,500 shares of P200 each, and 500 shares have already been subscribed for by the incorporators, while P25,000 in cash has been paid in. Eusebio Lopez is treasurer with offices at Iloilo until the line is in operation. The railroad will pass through a fertile region yielding at least 70,000 tons of freight per year, to be increased as further sugar acreage is developed. The estimated population is 110,000.

Manila Railroad Interest.—Business depression in the Philippines contributed to the falling off of revenues on the northern lines of the Manila Railroad company while the rice crop failure of last year and the September floods are held responsible for the decrease shown in freight earnings on those lines for 1914, were points emphasised by Governor General Harrison in a statement explaining the causes which have led to the necessity of meeting guaranteed interest charges on railroad bonds from government funds. Though not the first time in the history of the Philippine government, the four per cent interest guaranteed on bonds of the Manila Railroad company is being paid by the government and the total amount probably will reach P80,000. According to the statement, the year 1914 shows the greatest operation revenue on the northern lines in the history of the road with the exception of the year 1913. The falling off over 1913 amounted to P288,063.77. There was a falling off in freight earnings of P119,183.76, or approximately 9 per cent. There was a sympathetic falling off in passenger earnings of P164,358.21, or less than 8 per cent. At the same time, the operating expenses for 1914 exceeded those of 1913 by P100,706.84. The complete statement of comparative revenues and expenditures for five years follows:

NORTHERN LINES

	1910	1911	1912	1913	1914
Freight Earnings	849,886.61	968,877.40	918,389.33	2,272,544.92	1,153,361.16
Passenger earnings	1,600,006.22	1,807,828.18	1,981,122.09	2,138,828.73	1,974,470.52
Total operation revenue	2,494,785.60	2,780,931.66	2,925,171.04	3,440,812.11	3,152,748.34
Maintenance of Way and structure	315,341.59	414,365.57	391,866.06	442,802.92	443,204.49
Maintenance of Equipment	114,393.29	161,371.04	200,486.77	267,669.44	316,732.63
Traffic	31,833.66	32,463 66	27,828.33	30,530.17	33,494.74
Transportation	458,014.97	519,619.20	595,743.18	736,260.07	782,499.46
General	121,340.96	129,338.73	140,482.96	149,563.59	151,601.71
Total	1,072,974.47	1,257,158.20	1,356,407.30	1,626,826.19	1,727,533.03

SOUTHERN LINES

	1911	1912	1913	1914
Freight Earnings	176,634.78	340,157.31	448,432.15	538,996.72
Passenger Earnings	579,716.76	1,090,889.62	1,320,671.77	1,273,085.04
Total operating revenue	761,850.16	1,443,042.57	1,795,675.66	1,839,985.96
Maintenance of Way and structure	66,073.93	177,954.14	203,025.40	275,427.62
Maintenance of Equipment	37,625.60	88,112.72	117,133.46	166,228.82
Traffic	10,621.84	14,848.07	18,310.52	19,719.93
Transportation	147,624.23	318,827.62	482,606.38	536,179.69
General	34,051.90	68,435.54	92,395.16	95,461.86
Total	295,997.50	667,278.09	913,470.92	1,093,017.92

Indian Railways' Deficit.—The deficit in the earnings of State and guaranteed railways in India as between April 1st and June 19th has now passed the figure of Rs. 20 lakhs, and on other lines the deficit exceeds Rs. 10 lakhs, making an aggregate falling off of Rs. 30,75,594. The improvement in Oudh and Rohilkhand earnings now stands at Rs. 9,53,862; the East Indian receipts at Rs. 5,66,930, the next best record standing to the credit of the North-Western with an increase in earnings of Rs. 4,42,367. The deficit in the earnings of the Bombay, Baroda and Central India 5ft. 6in. gauge now stands at Rs. 6,73,355; to which must be added Rs. 7,95,543 in deficit on the 3ft. 3⅜in. gauge. In the week ending June 19th Great Indian Peninsula earnings show a slight improvement, but over the longer period the decreased receipts aggregate Rs. 8,25,993. The returns for Southern India reflect trade conditions not entirely uniform, South Indian receipts showing a decline of Rs. 4,49,968, not including reaction of Rs. 3,87,421 on the Travancore branch; the Madras and Southern Mahratta, on the other hand, claiming an improvement of Rs. 1,07,163, also showing improved earnings in the particular week under mention.

New Indian Railway.—The Kalighat-Falta Railway Co. has organized with a capital of 1,700,000 rupees ($551,536) to complete a 26-mile railway on 2½-foot gauge from Kalighat to Falta, Bengal. The line will be constructed and worked by Messrs. McLeod & Co., Calcutta, as managing agents under a board of directors and subject to close Government supervision. The line will run through one of the most densely populated parts of Bengal, the density of population being more than 1,100 per square mile. This is more than double the average density of Bengal which is 551 per square mile. The only present means of passenger transportation is by hackney carriage or on foot, and although the usual fare on Bengal light railways is 4 pies ($0.0067) per mile, judged by the third-class passenger traffic on other railways in India, the passenger traffic is expected to yield at least 6 per cent on the capital invested. Almost every foot of the ground through which the line runs is under cultivation, and as the only means of transportation heretofore has been the bullock cart, it is estimated that the freight traffic will be immense.

Bangkok's New Station.—The Bangkok terminal station of the Northern Railway has been under construction for several years, and a $44,400 contract has now been awarded for the final frontage buildings. With the completion of these structures, Siam will have one of the most up-to-date railway stations in the Far East. The contract was awarded to the Bangkok Dock Co. (Ltd.)

The work on the Southern Line of Railways is proceeding satisfactorily, and the final rails linking Singora with Bangkok were laid early in May, 1915. The line will be open for regular traffic in June, 1916.

Australia's New Railways.—Public works involving an expenditure of more than $50,000,000, including ten railway lines, two water conservation schemes, harbor works and a canal project are provided for in a single contract just signed by the New South Wales government with an Anglo-Australian contracting firm, Norton Griffiths & Company. The contractors agree to finance the operations, which will be done in accordance with plans drawn up by the department of public works. The Government will allow the firm a profit of five per cent on the entire cost of construction.

Railway Construction in Japan.—A general policy for railway construction has been laid down by the Government to complete within 10 years, an addition of 1,219.5 miles to the mileage already worked. During the present fiscal year new lines of 79.5 miles will be completed and opened to traffic. Within the succeeding six years 238.3 miles will be completed, while the remainder is not yet assigned for the lack of capital. All light railway lines, a total of 331.3 miles, are postponed until the year 1916-17, or later. The Railway Board has appointed a committee, to investigate the proposed conversion of the present narrow gauge railway system into broad gauge. The committee is headed by Dr. Furukawa, vice-president of the board. It is said that the tunnels for the Atami line, now under construction, will be built so that they can be converted into a broad gauge system in the future without reconstruction.

TRAMWAYS

Street Railway for Canton.—Plans for a street railway system for Canton connecting the stations of the Canton and Hankow Railway and the Kowloon-Canton Railway, and running through a populous portion of the city, have been drawn and forwarded to Peking. General Lung, military governor of Kwangtung Province, in connection with Chinese capitalists in Hongkong, has projected this line of 6 miles along a route which will permit the use of a considerable portion of the old wall of Canton. The line will proceed from the Canton-Hankow Railway station to the east wall of the city which it will follow to the south wall, where it will parallel the water front on the Pearl River, passing within about a third of a mile of the foreign concession on the island of Shameen. It will reach the river front proper near the station of the Kowloon-Canton Railway line—the line to Hongkong. Plans for the rolling stock are not yet complete, but the general idea seems to be to buy motors and steel parts of cars abroad, setting up the cars in Canton or Hongkong, to save freight rates on complete cars. An initial outlay of about $100,000 gold is planned. The practical management of the enterprise at present is in the control of Mr. Chin Gee Hee, president of the Sunning Railway Co., working in consultation with General Lung.

Tokyo Tram Suffers.—Since the opening of the government electric train service between Tokyo and Yokohama, the directors of the Keihin Electric Railway, a private line, say the revenue of their company has decreased forty per cent. Officers and directors have asked Count Okuma to help them out of their difficulty. Dr. Furukawa, Vice-President of the Railway Board, says that wherever a private railway line parallels a state line an agreement on rates is entered into because competition will do neither any good. The lines between Tokyo and Yokohama are no exceptions. But since the opening of the electric train service between the two cities, the business of the Keihin Dentetsu Kaisha seems to have been affected and complaints have been heard from the authorities of the company that the continuation of the existing rates means a hardship. The Railway Board in response announced the abandonment of the agreement and allowed the private company to adopt any rates they liked.

ELECTRICITY

Lucban, P. I., Hydro-electric Plant.—The Frank L. Strong Machinery company has closed a contract with the Lucban Electric Light and Power company to install a hydro-electric plant in Lucban, Tayabas, the first of its kind to be introduced in the Philippines for municipal lighting purposes. The proposed plant will cost $30,000. The machinery will be purchased from American makers and the plant is expected to be ready for operation this month. The project will be financed by Filipino capital through a corporation floated in the municipality. The power for the plan will be generated by the water of the Pagsipi River, which flows through the municipality The electric-light and power system will consist of a Pelton water turbine, connected with a General Electric alternator, a concrete dam across the river, a head gate, flume penstock, a complete power plant, transmission, and distributing line. The system will require 42,000 feet of wiring and 1,600 feet of flume line, with a capacity of 900 liters a second. Lucban is one of the centers of the Philippine hat industry. One of the incentives for constructing the new lighting and power system was the great need for better lighting in the homes where the hat industry is being conducted.

Tayabas Power Site Grant.—Presaging the organization of an enterprise which will be able to supply the whole province of Tayabas with electric light and power, the Philippine government irrigation council has approved a water rights request made by a coterie of Manila and Tayabas residents through W. E. Stevenot, a Manila engineer, by the terms of which the rights to 50,000 feet per second on the Canan river and 26,000 feet per second on the Agos river in that province have been granted to establish an electric light and power plant. This grant is one of the largest that has ever been made by the insular government, and it is asserted that there is practically no limit to the amount of electric current that can be generated by the proposed plant if proper use of the water power thus placed at its disposal is made. Those who have been most concerned in securing the grant from the government are unwilling to make any definite statement as to the identity of the capitalists behind the project or as to the exact nature of the plans in view, holding that such a statement at this time would be a trifle premature. It is understood, however, that expert engineers will go over the ground thoroughly, and that practically all preliminary steps toward securing the proper franchises have already been taken.

Zamboanga's Electric Lights.—Mr. Teague, proprietor of Zamboanga Cine, has bought a 50-horsepower engine which he is now installing in the Zamboanga theatre, and announces that he soon will be able to supply the entire city with electric light.

To Extend Sungkiang Plant.—After having been installed a little over a year, electricity has proven so popular as an illuminant in Sungkiang, Kiangsu Province, that the plant has reached its limit. The Company plans to increase its output and to this end has sent out circulars notifying the people that those who want electricity must lay down a dollar for each new lamp desired. The company, so far, has given efficient service.

Dairen Electric Light Service.—The South Manchuria Railway Electricity Works has received Y36,266.89 in lighting receipts and Y8,910.27 in power receipts, being an increase by Y2,783.90 and Y730.55 respectively on the figures for the corresponding month of the previous year. The latest returns put the number of lamps served at Dairen at 58,126, being an increase by 278 over the previous month.

Electric Light at Kirin.—A group of Chinese merchants at Kirin have applied to the Chinese authorities there to take over management of the electric light installation. They are said to have collected 3,000,000 *tiaos* for the purpose. Gov. Meng has instructed them to confer with the Provincial Bank about the details.

Extension of India's Hydro-Electric Works.—Additional areas have for some months past been under investigation with a view to the future expansion of the Tata Company's Hydro-Electric Works. The first section of the new undertaking will be in the Andra Valley about 9 miles North-North-West from Walwhan Dam where a lake has been laid out to supply nine thousand millions of cubic feet of water, and the site chosen for the Power House is near the village of Bhivpuri about 12 miles north of Khapoli, the site of the present power house. It is found that a development capable of supplying at least 60,000 Electrical Horse Power for 12 hours daily in Bombay can be had at a cost much below that of the Company's present work, which should enhance materially the future prospects of the company. The next valley to the north, or the Bhama Valley, has also been surveyed and is being planned to supplement and extend the Andra Valley project. Between the two it is anticipated that considerably more than 100,000 electrical horse power can be made available. The catchment areas are so large that a moderate rainfall will suffice.

Karachi Power Station.—The following is a description of the plant employed in the central generating station of the Karachi Electric Supply Corporation recently declared open:—

The engines are two 240-h.p. and one 100-h.p. Mirrlees Diesels, and run on crude oil, which can be obtained at rupees 40 (£2.10s) per ton. As the engines take only 5 lbs. of oil per horse power per hour the cost per horse power hour is a very notable reduction in cost over steam. The cooling plants are duplicated, as they are very essential to the running of the engines. A Tudor battery, consisting of 276 cells, is installed with the object of supplying electricity to consumers during periods of high load. The battery is charged through two boosters during periods when the engines are running, and the cost of charging the battery is therefore very small.

A white marble switch board is mounted on a platform seven feet above the engine room floor level, and contains the switchgear for all machinery in the power house, and the feeders going out to the overhead mains. A small auxiliary switch board for controlling the station lighting is also mounted on the platform. The distribution is on the three wire system, electricity being generated at 440 volts, and supplied to consumers at 220 volts. For balancing the system two balancers have been installed, each capable of dealing with an out of balance of 75 amperes.

The supply mains are carried overhead, and consist of stranded copper cable carried on porcelain insulators on steel poles. For the protection of the public the neutral wires are carried in parallel underneath the live wires,

and are linked across twice in every span. In the event of a live wire breaking it would fall across the neutral wire, and an automatic switch operating in the power house would at once cut off all electricity from the mains. At suitable points on the overhead mains, link and feeder boxes have been provided, which enable any portion of the system to be disconnected from the supply, and prevent the interruption to supply due to a breakdown on any portion of the mains. The mains and poles have been designed to carry double the load it is estimated that Karachi will require for the next two or three years, and the cost for extensions to mains should therefore not be a large item during the next few years.

Japan Standardizes Plants.—The Communications Department has just effected modifications in various regulations governing electric enterprises and the installation of isolated power plants, and has published new regulations governing the supply and distribution of power. According to the official explanations offered, the main points of those modifications are the enforcement of the unification of the number of periodicity and the distribution pressure of the generator; the simplifications of the formalities of conveying power plants in accordance with the Factory Mortgage Law; the facilitation of the power transmission from one circuit to another in the case of the collapse of a power plant; the strictest enforcement of official examination of private companies, power distribution, supply terms and procedure; and the simplification of the other official formalities concerning the supervision of private electric enterprises.

RIVERS, HARBORS AND CONSERVATION

Chefoo Harbour Improvement.—The Contractors for the improvement of the Chefoo Harbour have begun actual work, the inauguration taking place on August 2, in the presence of many Chinese and foreign authorities, with some ceremony. The big bucket-dredger "Colonia" was officially started and moving slowly at first scooped up the first bucket full of the harbour bottom, opposite Tower Hill, thus beginning the dredging of a channel under the projected eastern breakwater. The end of the breakwater—which will be 2,600 feet in length—is marked by a black spar-buoy, to the port of which entering vessels are to pass. A few days after the dredging of the channel was begun stone was dumped into it to form the foundation of the breakwater. On the west beach the necessary godowns, workshops, and a jetty are being constructed. The dredging plant consists of the bucket dredger above mentioned, three powerful tugboats, and four self-discharging barges. Next spring a suction dredger and more tug-boats and barges will arrive.

To Build Chefoo Breakwater.—As a result of public tender the construction of the breakwater at Chefoo has been awarded to the Netherlands Harbour Construction Company of Shanghai. The lowest tender offered by a Chinese contractor of Chefoo was rejected as he could not find suitable guarantee, his quotation being $2,340,000 and the Dutch Company's $2,677,000. The funds necessary for this enterprise will be advanced by the Russo-Chinese Bank in the first year and from the Russo-Chinese Bank and Hongkong and Shanghai Bank thereafter.

Puyang Work Finished.—A recent Presidential mandate enumerated the merit of the work for the conservancy of the Puyang River, in which over $5,000,000 was spent and which was concluded late in June, by which the people of three provinces—Chihli, Honan and Shantung—will receive great benefit. Deep appreciation is expressed in the Mandate. Hsi Shih-kwang, who superintended the work, has been rewarded with the 4th rank of merit. Wang Huai-ching, the Commissioner of Defence of Kweinan, is allowed to have all his "black marks" erased. $10,000 has been granted to the sappers of the River Conservancy who engaged in the work and $3,000 to sappers sent to help them by the Commissioner of Defence of Kweinan.

Reclamation Work in Korea.—It is reported that great activity is in evidence in the reclamation of waste lands along the shores of South Chonla Province. These lands can easily be converted into arable fields; and, as this district is one of the richest agricultural sections of Chosen, several prominent men in Japan have interested themselves in the experiment to the extent of applying to the Government General for permission to undertake the work. It is expected that the work will be commenced in the spring.

Resounding Dairen Harbour.—Lieut. Commander Ogawa and party of the Hydrographic Office of the Navy Department, Tokyo, have been taking resoundings in the Dairen Harbour since the latter part of April. A member of the party has made the following observations:—The last soundings of Dairen Harbour were taken in 1905. In the succeeding ten years changes have come over which discount the value of the figures on the existing charts. It was for this reason that the present re-soundings have been taken up. Firstly, the shore lines are to be surveyed as they are. Secondly, the changes in the currents are to be marked. Thirdly, soundings of immediate coast waters are to be taken. Already the surveying and resounding work in what is usually accepted as Dairen Harbour has been completed, and what is left to be done consists of the Basin and other water areas inside the Breakwater in addition to the shore area in front of Jijiko.

Tsingtau Harbor Clear.—With the exception of one ship all those sunk in the neighborhood of the port of Tsingtau have been floated by the Japanese navy and vessels may now visit the port safely. The Japanese naval authorities at Tsingtau announced that warships and other vessels would be permitted to enter the main port of Tsingtau on and after June 10, although they were requested not to interfere with the work of floating of the one remaining vessel sunk at a point west of the entrance to the port.

Improving Port of Cebu.—The work of improving the port of Cebu is being rapidly pushed by the bureau of public works. The waterfront has been dredged to a depth of 19 feet from the market to the angle in the sea wall, and to 25 feet from the angle to the Custom House. The dredge is now working in front of the new wharf, lowering its depth to 30 feet. The area behind the new wharf and adjoining the U.S. Club is being filled. Cebu soon will be one of the best equipped ports in the Far East with its 3,000 feet of concrete sea wall with berths for two steamers drawing 30 feet of water, a fifty ton crane available for heavy lifts, and asphalt paved street approaches. The engineers in charge estimate that all the improvements now under way will be completed within the next two months.

New Projects.—In accordance with the contract award announced some time ago, the Atlantic, Gulf and Pacific company has been engaged for a month in preliminary dredging and pile-driving work connected with the construction of the new concrete bulkhead between piers 3 and 5. This contract calls for an expenditure of approximately P.200,000 of government funds. Meantime work has already been begun by Contractor John Gordon on the new buildings for the Philippine school of arts and trades, which are to cost in the neighborhood of P.171,000.

Contractor J. E. Ainsworth of Manila has already been awarded the Iloilo river wall contract as well as that for the Mainit bridge in the same province.

TELEPHONES AND TELEGRAPHS

Foochow Telephone Service.—Two telephone companies operate in Foochow—one small foreign-owned exchange connecting only the firms and residences in the foreign quarter at Nantai, and one native-owned exchange operating in Foochow city and all immediate suburbs. The foreign-owned exchange is operated and controlled by a local German firm. The switchboard provides 50 connections. There are 40 subscribers, an annual rate of $70 (Gold $28) being charged for either the desk or wall instrument. The exchange has only 3 miles of wire, the line being of the single-wire system.

The Chinese-owned exchange is known as the Fukien Telephone Co. The company began operation in 1903 and is capitalized at $45,000. The property is valued at $60,400, and during the past year a profit of $7,400 was realized. The demand for telephone service through this exchange has gradually increased, and the subscribers now number 320. The length of wire in use is 140 miles. Six switchboards have been purchased, four being of British and two of Norwegian manufacture. With the exception of one 200, the switchboards provide for connections of 100 each, and five of the switchboards are in use at present.

Most of the telephone supplies have heretofore been purchased in England, a fair amount having also been imported from Germany and Norway. The subscription rate for the ordinary wall instrument is $60 (Gold $24) per year, and for the "microphone" style (Gold $28.80). The telephone service of the native exchange has greatly improved of late, and the company is now installing the double-wire system. There are three branch exchanges, but one will be dispensed with upon the completion of double-wire installation. The company at present employs one Japanese engineer in addition to its native staff.

New Telephone for Hankow.—Specifications for the contemplated telephone system for the Wuhan cities [Wuchang, Hankow, and Hanyang], have been completed and tenders soon will be called for in the Peking and Shanghai papers. Arrangements will undoubtedly be perfected whereby the telephone systems for the various foreign concessions in Hankow will be taken over by the Chinese Telephone Administration, as also the German system now in use in Hankow city, and one general system substituted therefor.

Payment for the new system will be made in four equal installments—one-fourth to be paid down at the time of the acceptance of tender, one-fourth upon delivery of the materials, one-fourth upon the completion of the installation and its acceptance, and the final payment two or three years thereafter. Although it has not been definitely decided as to how many telephones the new system will provide for, 2,000 or 3,000 will probably be called for and arrangements made whereby the system will allow of an expansion up to 10,000 instruments.

Hankow is a very important center in China, and will probably occupy a position in this country analogous to that of Chicago in the United States. The combined population of the three Wuhan cities is conservatively estimated at 1,000,000.

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Allen & Co. Ltd., Edgar ... 60
American Locomotive Co. ... 13
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Andersen, Meyer & Co. ... 2
Anderson & Co., Wm. H. ... 49
Avery, Ltd., W. & T. Soho Foundry, ... 3
Avonside Engine Co. Ltd. ... 40

Babcock & Wilcox, Ltd. ... 49
Baldwin Locomotive Works. ... 17
Bank of China ... 9
Bank of Communication ... 8
Bank of the Philippine Islands ... Cover
Bohler Bros. & Co., Ltd. ... 57
British Aluminium Co., Ltd. ... 54
Burrell & Co., Ltd ... 60

Chinese Government Railways of China ... 18,22,23,26,27,30
Chosen Railway ... 31
Cia. Trasatlantica. ... 55
Commercial Car Co. ... 51
Commercial Press, Ltd. ... 43
Craig & Co. A. F ... 32

Deutsch-Asiatische Bank ... 7
Dollar Co., Robert ... 19
Drysdale & Co., Ltd. ... 44

Escher Wyss & Co. ... 3
Evans, Joseph, & Sons ... 59

Fairbanks Morse & Co. ... 53
Far Eastern Review, The ... 2, 21
Fiat, San Giorgio, Ltd ... 53
Firestone Tire & Rubber Co. ... 41

General Electric Co ... 35
Germinal Cigar & Cigarette Factory.... 4
Goulds Manufacturing Co. ... 31
Green Island Cement Co., Ltd. ...

Hood Haggie & Son., R. ... 61
Harvard Medical School ... 55
Hasler Telegraph Works ... 53
Haywood Bros. & Eckstein. ... 57
Hongkong & Shanghai Banking Corporation. ... 6
Hongkong & Whampoa Dock Co., Ltd... 10
Hurst, Nelson & Co. Ltd. ... 34

Ice Trade Journal Co ... 43
International Banking Corp ... 6

Jardine, Matheson & Co. ... 46
Jones & Lamson Machinery Company. 40
Johnson-Pickett Rope Co. ... 42

Kailan Mining Administration ... Cover
Kaye & Sons, Ltd., Joseph ... 2
Kellogg Switchboard & Supply Co. ... 32

Lehigh Car, Wheel & Axle Works ... 53
Lidgerwood Manufacturing Co. ... 32
Lima Locomotive Works. ... 14

Mather and Platt, Ltd. ... 15
McConway & Torley Co., The ... 37
Mitsu Bishi Dockyard & Eng. Works... 10
Morse & Son, (Inc.) A. J. ... 44
Municipal Engineering and Contracting Co. ... 57
Mustard & Co., ... 55

Norton & Harrison Co. ... 60

Olsen & Co., Walter E. ... Cover
Owen Bros ... 3

Pacific Mail S. S. Co. ... 21
Pekin Syndicate, Ltd. ... 16, 47
Pienlo Railway ... 28
Priestman Brothers, Ltd. ... 12
Pyle-National Electric Headlight Co... 19

Railway Signal Co., Ltd. ... 57
Reddaway & Co., F. ... Cover
Rendrock Powder Co. ... 12
Royles Limited ... 39
Russo-Asiatic Bank ... 7

Schuchardt & Schütte, ... 43
Schmidt Superheating Co., The. ... 12
Shanghai Dock & Eng. Co., Ltd., The... 11
Shanghai Machine Co. ... 32
Shanghai-Nanking Ry. ... 28
Shewan, Tomes & Co. ... 45
Siemens China Co ... 50
Simmons Manufacturing Co., The. ... 55
South Manchuria Railway Co. ... 24
Standard Oil Co., of New York ... 20, 36, 54, 58
Stevenson & Co., Ltd., W. F ... 44
Strong Machinery Co., Frank L. ... 18
Symington Co., T. H., ... 15

Tattersall & Co., Alfred R ... 3
Trimont Manufacturing Co ... 43

United States Steel Products Co..... 33,38,42,53,58

Vulcan Iron Works. ... 32

Werf Gusts ... 55
Western Electric Co. ... 4
Westinghouse Electric & Manufacturing Co., The ... 1
White & Co. J. G. ... 57
Worthington Pump Co., Ltd. ... 5

Yokohama Specie Bank, Ltd. ... 7
Ynchausti & Co. ... 44

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Educational
International Correspondence Schools

Electric Hoists
General Electric Co.
Lidgerwood Mfg. Co.

Electric Lighting Plants
Andersen Meyer & Co.
Arnhold, Karberg & Co.
Dick, Kerr & Co., Ltd.
Westinghouse E. & M. Co.
Fearon, Daniel & Co.
General Electric Co.
Siemens China Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
Shewan, Tomes & Co.
Frank L. Strong Machinery Co.
U. S. Steel Products Co.
Western Electric Co.

Electrical Supplies
Andersen, Meyer & Co.
Arnhold, Karberg & Co.
Jardine, Matheson & Co.
Babcock & Wilcox
Fearon, Daniel & Co.
General Electric Co.
Mather & Platt, Ltd.
Shewan, Tomes & Co.
Siemens China Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.
Western Electric Co.

Engines
Shanghai Dock & Engineering Co., Ltd.
A. F. Craig & Co.

Evaporators
Royles Ltd.

Excavators and Elevators
Austin Drainage Excavator Co.
Priestman Bros. Ltd.
Shanghai Dock & Engineering Co., Ltd.

Explosives
Arnhold, Karberg & Co.
Curtis's & Harvey, Ltd.
Jardine, Matheson & Co.
Rendrock Powder Co.

Fan Blowers
Drysdale & Co.

Feed Water Heaters
Babcock & Wilcox, Ltd.
Royles, Ltd.

Ferro Manganese
U. S. Steel Products Co

Files
Bohler Bros. & Co., Ltd.

Filters (Mechanical)
Mather & Platt. Ltd.

Firebrick
W. H. Anderson & Co.
Kailan Mining Administration

Fire Engine
Dick, Kerr & Co., Ltd.

Fire Prevention Apparatus
Mather & Platt, Ltd.

Filament Lamps
Dick, Kerr & Co., Ltd.
Frank L. Strong
Siemens China Co.
Westinghouse E. & M. Co.

Flat Turret Lathe
Jones & Lamson Mchy. Co.

Folding Chairs
Simmons Mfg. Co.

Food Products
Anderson & Co., W. H.

Forwarding Agents
W. H. Anderson and Co.

Fuses and Fuse Blocks
General Electric Co.
Westinghouse E. & M. Co.

Galvanized Roofing
American Rolling Mill Co.

Gas Engines
Mather & Platt, Ltd.
Worthington Pump Co., Ltd.

Gasoline Lighting Plants
Andersen, Meyer & Co.

Gas Producer Plants
Westinghouse E. & M. Co.

Gears, Silent
General Electric Co.

Generators, Electric
General Electric Co.

Graphite Paint
J. Dampney & Co.

High Speed Engines
Drysdale & Co.

Hoisting Engines
Lidgerwood Mfg. Co.

Horse Shoes
U. S. Steel Products Co.

Hose
Geo. Angus & Co.
Interlock Metal Hose Co.
F. Reddway & Co., Fire Hose "Sphincter Grip," Armoured Hose, etc.

Hotels
South Manchuria Railway.
Chosen Railways

Ice Machinery
Vulcan Iron Works

Insulating Material
Micanite & Insulators Co., Ltd.

Insurance
Stevenson & Co., Ltd., W. F.

Ironfounders
A. F. Craig & Co.

Job Printers
Commercial Press

Journal Boxes
T. H. Symington Co.

Knitting Machines
Shewan, Tomes and Co.

Lanterns and Lamps
Andersen, Meyer and Co.

Locks
Joseph Kaye & Sons, Ltd.
Shewan, Tomes & Co.

Locomotive Speed Indicator and Recorder
Hasler Telegraph Works.

Locomotive Headlights
Pyle-National Electric Co.

Logging Machinery
Lidgerwood Mfg. Co.

Lubricants
Albany Lubricating Co.
Standard Oil Co.
W. H. Anderson & Co.

Lumber Dealers
Robert Dollar Co.
Jardine, Matheson & Co.
Norton Harrison Co.
Shewan, Tomes & Co.

Machinery Merchants
Andersen, Meyer & Co.
Arnhold, Karberg & Co.
Shanghai Machine Co.
Fearon, Daniel & Co.
Frank L. Strong
Schuchardt & Schutte.
Shanghai Dock & Engineering Co., Ltd.

Machine Tools
American Tool Works Co.
Jones & Lamson Mchy. Co.
Schuchardt and Schutte.

Marine Engines
Fairbanks, Morse & Co.
W. F. Stevenson & Co., Ltd.

Manganese Steel
Edgar Allen & Co.
Bohler Bros. & Co., Ltd.

Manila Rope
Johnson Pickett Rope Co.
Ynchausti & Co.

Measuring Instruments
General Electric Co.
Westinghouse E. & M. Co.

Meat Products
W. H. Anderson & Co.

Mechanical Rubber Goods
F. Reddaway & Co.

Meters, Flow-Air, Gas and Water
General Electric Co.

Mill Machinery
Shanghai Dock & Engineering Co., Ltd.
A. F. Craig & Co., Ltd.

Mine Locomotives
General Electric Co.

Mine Prospecting and Development
Peking Syndicate, Ltd.

Mineral Oil Plants & Machinery
A. F. Craig & Co.

Mining Machinery
Melchers & Co.
Shanghai Dock & Engineering Co., Ltd.
Shewan, Tomes & Co.
Gould's Manufacturing Co.

Motor Omnibus
Hurst Nelson and Co., Ltd.

Motors
General Electric Co.
Shanghai Dock & Engineering Co., Ltd.

Motor Launches
Shanghai Dock & Engineering Co., Ltd.

Motor Spirits
Standard Oil Co.

Motor Tyres
Firestone Tire and Bubber Co,
F. Reddaway & Co.

Motor Vehicles
Commercial Car Co.
Fairbanks Morse & Co.

Oil Break Switches
General Electric Co.
Westinghouse E. & M. Co.

Oiled Cloths and Papers
Micanite and Insulators Co., Ltd.

Oil Engines
Fairbanks, Morse & Co.

Oil Mill Machinery
A. F. Craig & Co.

Oil Separators
Worthington Pump Co., Ltd.

Oilwell Casing and Tubing
U. S. Steel Products Co.

Ozone Machines
Siemens China Co.

Packings
F. Reddaway & Co.

Paints, Oils and Varnish
Standard Oil Co.
Albany Lubricating Co.

Photo-Engravers
Commercial Press

Piling (Sheet Steel)
U. S. Steel Products Co.

Platform Scales
W. & T. Avery, Ltd.

Power Plants
Frank L. Strong Machinery Co.

Printing Machinery
Jardine, Matheson & Co.
Shewan, Tomes Co.

Pulleys (Steel)
Schuchardt & Schütte
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.

Pulverizers
Lehigh Car, Wheel and Axle Works.

Pumps
Anderson, Meyer & Co.
Drysdale & Co. Ltd.
Fairbanks, Morse & Co.
General Electric Co.
Jardine, Matheson & Co.
Joseph Evans & Sons
Mather & Platt, Ltd.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
Shewan, Tomes & Co.
The Goulds Manufacturing Co.
Worthington Pump Co.

Pulverizing Mills
Lehigh Car, Wheel and Axle Wks.

Radial Drills
American Tool Works Co.

Railometers
W. & T. Avery, Ltd.

Railroads
Chinese Government Railways
Chosen (Korea) Railways.
South Manchuria
Southern Pacific Co.

Railroad Supplies
American Locomotive Co.
Andersen, Meyer & Co.
Arnhold, Karberg & Co.
Baldwin Locomotive Works.
Robert Dollar Co.
Dick, Kerr & Co., Ltd.
Fearon, Daniel & Co.
Fairbanks, Morse & Co.
Hurst, Nelson & Co., Ltd.
Jardine, Matheson & Co., Ltd.
Lima Locomotive Works.
McConway & Torley Co.
Pyle-National Electric Co.
Railway Signal Co., Ltd., The
T. H. Symington Co.
Shewan, Tomes & Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Rail Weighers
W. & T. Avery, Ltd.

Railway Signals
Railway Signal Co.

Railway Weighbridges
W. & T. Avery, Ltd.

Refrigerating Machinery
Anderson, Meyer & Co.
Vilter Mfg. Co.
Vulcan Iron Works.

Reinforced Concrete Construction
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Rheostats
General Electric Co.

Road Rollers
W. F. Stevenson and Co.

Roofing Materials
American Rolling Mill Co.
W. H. Anderson & Co.
Norton & Harrison.
U. S. Steel Products Co.

Rope Manufacturers
Johnson-Pickett Rope Co.
U. S. Steel Products Co.
Ynchausti & Co.
Shewan, Tomes & Co.

Rotary Converters
General Electric Co.
Westinghouse E. & M. Co.

Rotary Dryers
Lehigh Car, Wheel and Axle Wks.

Rubber Tires
Firestone Tire and Rubber Co.

Safes
W. H. Anderson & Co.
Mustard & Co.
Shewan, Tomes & Co.

Safety Valves
Royles, Ltd.

Saw Mill Machinery
Andersen, Meyer and Co.

Scales
W. & T. Avery, Ltd.

Sewer Pipe & Tile
W. H. Anderson & Co.

Sheet Steel
U S. Steel Products Co.

Shipping Agents
Cia. General de Tabacos
Shewan, Tomes & Co.
Stevenson & Co., Ltd.

Shipbuilding and Repairs
Fiat-san Giorgio Ltd.
Tsingtauer Werft
Hongkong & Whampoa Dock Co., Ltd.
Mitsu Bishi Dock and Engineering Works
Shanghai Dock and Engineering Co., Ltd.
The Taikoo Dockyard and Engineering Company of Hongkong, Limited

Ship-Chandlery
Ynchausti & Co.

Steamship Companies
Cia. Transatlantica.
Robert Dollar Company.
Pacific Mail S. S. Co.
Ynchausti & Co.
Toyo Kisen Kaisha.

Steam Hoists
Lidgerwood Mfg. Co.

Steam Kettles
Royles Ltd.

Steam Turbines
Dick, Kerr & Co. Ltd.
General Electric Co.
Westinghouse E. & M. Co.

Steel Manufacturers
United States Steel Products Export Co.

Steel Works
Bohler Bros. & Co., Ltd.
U. S. Steel Products Co.

Stokers
Babcock & Wilcox Ltd.

Stretchers
Simmons Mfg. Co.

Structural Steel
Bohler Bros. & Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Sugar Machinery
A. F. Craig & Co.

Superheaters
Babcock & Wilcox Ltd.
Schmidt Superheating Co.

Tanks
Pacific Tank and Pipe Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.
A. F. Craig & Co.

Telephones
Anderson, Meyer & Co.
Kellogg Switchboard & Supply Co.
The Western Electric Co.
Westinghouse E. & M. Co.

Testing Machines
W. & T. Avery, Ltd.

Textile Machinery
A. F. Craig & Co.

Tiles and Bricks
Green Island Cement Co., Ltd.
Kailan Mining Administration.

Tin Plates
U. S. Steel Products Co.

Tobacco Dealers
British-American Tobacco Co., Ltd.
Cia. General de Tabacos
Olsen & Co., Walter E.

Tools
American Tool Works Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.

Tool Steel
Bohler Bros. & Co. Ltd.
U. S. Steel Products Co.

Towers Cooling
Worthington Pump Co., Ltd.

Track Gauges and Levels
Fairbanks, Morse & Co.

Tramcars
Hurst, Nelson & Co. Ltd.

Tramway Equipment
Dick Kerr & Co. Ltd.
Westinghouse E. & M. Co.

Tramway Supplies and Specialties
Anger Mfg. & Supply Co., Ltd.

Transformers, Electric
General Electric Co.

Trucks
Commercial Car Co.

Tube Mills
Edgar Allen & Co.

Tungsten Steel
Bohler Bros. & Co., Ltd.

Turbine Pumps
Worthington Pump Co., Ltd.

Turbines, Steam
General Electric Co.

Turbo-Blowers
Westinghouse E. & M. Co.

Turret Lathes
Jones and Lamson Mchy. Co.

Valves
Shewan, Tomes & Co.

Vanadium Steel
U. S. Steel Products Co.

Vegetable Oil Plants.
A. F. Craig & Co.

Ventilating Apparatus
Shewan, Tomes & Co.

Water Softeners
Babcock & Wilcox Ltd.

Waterworks Equipment
Edgar Allen & Co. Ltd.
Worthington Pump Co.

Weaving Machinery
Shewan, Tomes & Co.

Weighing Machines—Weigh Bridges
W. & T. Avery, Ltd.

Welding Outfits, Electric Arc.
General Electric Co.

Windmill
Fairbanks, Morse & Co.

Wireless Telegraph Apparatus

Wire Nails
U. S. Steel Products Co.

Wire Rope and Cables
Bohler Bros. & Co., Ltd.
U. S. Steel Products Co.

Wood Working Machinery
American Tool Works Co.
Defiance Machine Works
Shanghai Dock & Engineering Co., Ltd.

Wrenches
Trimont Mfg. Co.

THE FAR EASTERN REVIEW

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CHINA'S CORPORATION REGULATIONS

(TRANSLATION OF MANDATE PROMULGATED JANUARY 1, 1914)

SECTION I

Article 1. The term "Corporation" referred to in these regulations includes only organizations formed for the purpose of carrying on industrial and mercantile enterprises.

Article 2. Corporations are sub-divided into 4 classes:

(a) Unlimited Corporation (simple partnership)
(b) Partnership Corporation (mixed corporation)
(c) Joint stock limited corporation (corresponding to the ordinary foreign corporation.)
(d) Joint stock partnership corporation.

Article 3. All corporations are recognized as distinct individuals in the eye of the law.

Article 4. The residence of the corporation is the place where the corporation has its head office.

Article 5. A corporation shall not be allowed to begin preparations for its undertaking until properly registered at the Yamen of the local authority.

Article 6. A corporation shall not be allowed to bring suit against a third party until properly registered by the local authority.

Article 7. If a corporation fails to commence business within 6 months after registration, the local officials have the right to cancel its registration at the request of the attorney. The time limit mentioned above can be extended at the request of the Corporation giving satisfactory reasons.

Article 8. If a corporation acts illegally, or disturbs the peace in any way, the local official has the right (or at the request of the attorney) to dissolve the organization.

SECTION II (*Unlimited Corporation*)

1.—*Organization*

Article 9. When two or more persons organize into an unlimited corporation, each member concerned should countersign the laws and regulations governing such organizations.

Article 10. The laws of an unlimited corporation should explicitly state the following points:

(a) Trade mark and name.
(b) The nature of the business undertaken.
(c) Full names and addresses of stockholders.
(d) Location of head and branch offices.
(e) Kind and amount (if property, the estimated value) of capital paid by each stockholder.

Article 11. The corporation shall be required to register at the office of the officials at the places where its head and branch offices are located within 15 days after the laws and regulations of the corporation are signed. The registration shall consist of the following items:

(a) Repeat (a) (b) (c) under Article 10.
(b) Head Office and branch offices.
(c) Date of establishment.
(d) If the existence is limited, state when to dissolve and why.
(e) The name of one or more representatives of the stockholders.
(f) Kind of capital and value of property rendered in lieu of capital.

Article 12. If a corporation establishes new branch offices, it should register within 15 days of its establishment at the office of the local officers and notify all the local officers at the places where the head office and the other branch offices are. If the new branch office is established at the same locality, it is only necessary to register at the office of the local official.

Article 13. Upon the removal of the head office or branch office from one place to the other, the corporation shall be required to register at the new place in accordance with Article 11 and also register the fact of its removal at the place of its original registration. If the removal is within one legal district, the corporation is only required to register the fact of its removal.

Article 14. If any changes are to be made to the original registration, notification should be sent to the local authorities within 15 days of the alteration.

2. *Internal Organization*

Article 15. Aside from the following restrictions, the corporation has the right to formulate bye-laws regulating its internal affairs.

Article 16. If the capital paid in by a stockholder consists of outstanding loans and accounts and if the latter cannot be collected when due, the said stockholder shall be held responsible for the amount.

In the case mentioned above, the stockholder shall also be liable for any accrued interest or compensations for other damages occasioned by his non-fulfilment of payment.

Article 17. The profits and losses of a corporation shall be borne by the stockholders proportionate to the amount of capital paid in by each, unless otherwise specified in the regulations.

If any definite proportion is pre-fixed, such proportion is applicable in both profits and losses.

Article 18. All stockholders of an unlimited corporation have the right and duty to do business in the corporation, unless certain individuals are specified in the bye-laws to take complete charge of the business.

Article 19. When the corporation is in charge of all or several of its stockholders, all business is to be transacted by a simple majority.

Under ordinary conditions, each stockholder has the right to act as he deems best in his business dealing; but as soon as any one stockholder objects, he should stop and a vote be taken of all the stockholders for a decision.

Article 20. The appointment and discharge of a manager should be determined by a majority of stockholders, even though certain stockholders are delegated with the task of looking after the business.

Article 21. Any alteration of the corporation bye-laws and undertaking of any extraordinary enterprise should have the approval of all the stockholders.

Article 22. Those stockholders who are not in charge of the business shall also have the right to enquire into the business conditions, look over the accounts, and inspect the goods or documents, etc.

Article 23. The stockholders in charge of business shall have no compensation unless specified.

Article 24. A stockholder who has advanced funds for the urgent need of the business has the right to ask for a refund of the amount, plus interest; if a loan, he can demand suitable securities.

A stockholder who has suffered damages on account of the business and not due to his own fault, has the right to demand compensation.

Article 25. When a certain stockholder or several stockholders are designated to take charge of the business, these stockholders cannot resign without satisfactory reason, nor can they be discharged without reason.

Even if satisfactory reasons are given, the resignation or discharge becomes effective only after meeting the approval of all the stockholders.

Article 26. The stockholders in charge of the business should conduct all transactions in accordance with the corporation regulations and with the business policies determined upon at the stockholders' meetings. If anything is done in conflict with these principles, resulting in a loss to the corporation, the stockholders in charge are liable for the damages.

Article 27. Any stockholder who may receive funds for the corporation and fails to turn them into the corporation treasury at the proper date, or any stockholder who has borrowed money from the corporation without the approval of the other stockholders, is liable for the interest and for damages if the corporation suffers any as a consequence. The stockholder in charge of business shall render a report of the business at the request of the corporation.

Article 28. No stockholder shall be allowed to conduct business of a similar nature for himself or for other parties, nor to participate in similar corporations as an unlimited stockholder without the consent of all the other stockholders.

In case of any stockholder violating the above regulation, the corporation, with the approval of the majority of all the stockholders, has the right to take possession of his business as its own.

The above mentioned privilege of the corporation shall be void, if any of the other stockholders fail to act within 15 days after being informed or within one year after the thing is done.

Article 29. No stockholder shall be allowed to dispose of part or whole of his stock to a third party without the approval of all the other stockholders.

3. *External Relations*

Article 30. The corporation shall have the right to designate any one of its stockholders as a special representative in accordance with its laws or with the approval of the stockholders. If not designated, any stockholder shall have the privilege of representing the corporation.

Article 31. The stockholder designated to represent the corporation shall represent the corporation on all occasions, whether in the case of a lawsuit or a business transaction.

Article 32. Any restriction upon the power of attorney, provided by corporation regulations or enforced with the approval of other stockholders is not valid to a third party not informed of such restrictions.

Article 33. Any damage done to others by the attorney or manager in conducting the business of the corporation, shall be borne by the corporation unless such damage is directly due to the fault of the individuals.

Article 34. When a stockholder is conducting business or other legal transaction on behalf of himself or of a third party with the corporation, he is not allowed to be the representative of the corporation at the same time except when such transaction consists of the return of loan to the corporation.

Article 35. In case the total resources of the corporation are insufficient to cover the losses, the stockholders shall be held responsible for the excess liability.

Article 36. Any stockholder joining the corporation shall be held equally responsible for all the debts of the corporation contracted before his entering into the business.

Article 37. Any non-stockholder who acts ostensibly as a stockholder of the corporation shall be held equally responsible as a regular stockholder in relation to a third party not so.

Article 38. Any reduction of capital does not affect the liability of the stockholders in relation to the creditors of the corporation. (This rule does not apply when the creditors fail to complain after the fact of such reduction has been registered at the offices of local officials.)

Article 39. In case of a corporation suffering losses, any subsequent profit should be reserved to make up such losses before any portion of it can be distributed to the stockholders.

In case of violation of the above rule, any creditor of the corporation has the right to complain and make the stockholders reimburse the corporation.

Article 40. The debtors of the corporation shall not be allowed to cancel the debt they owe to the corporation on account of being the creditor to any of its stockholders.

Article 41. Any stockholder may not request the withdrawal of his share of the corporation's capital stock, until the corporation is dissolved or he is permitted to withdraw.

4. *The Withdrawal of Stock.*

Article 42. In the absence of any definite specification regarding the duration of the corporation, any stockholder can tender his resignation at the end of a fiscal year, but a six months' notice to the other stockholders is necessary. Under extraordinary circumstances, a stockholder may withdraw even when the time existence of the corporation is pre-determined.

Article 43. Apart from the above, a stockholder may withdraw for any one of the following reasons:

(a) In accordance with some previous agreement as provided in the corporation by-laws.
(b) When approved by all the other stockholders.
(c) Death.
(d) Bankruptcy.
(e) Insanity.
(f) Compulsory discharge.

Article 44. The compulsory discharge of a stockholder is allowed under any of the following circumstances. It is only to be carried out with the approval of all the other stockholders and after the stockholder concerned has been duly notified.

(a) Non-payment of capital shares.
(b) Violating Article 28.
(c) Improper conduct in any business transactions or while representing the corporation.
(d) Unreasonably interfering with the management when one is not in charge, or use of corporation marks and seals without discretion.
(e) Failure to fulfil important responsibility.

Article 45. When the trade name of the corporation consists of the names of the stockholders, the name shall be altered at the withdrawal of any one stockholder.

Article 46. In the separation of stock, the corporation property is to be estimated at the market value and the withdrawing stockholder may be paid in currency irrespective of the nature and kind of capital he rendered at the start.

Any unsettled affair at the time of withdrawal may be left until a more convenient time when a precise calculation is possible. The claim of the stockholder who withdraws upon the corporation may be settled in any way the corporation may deem best.

Article 47. Stockholders who have become such for merit of service or good will, may be dealt with according to the above rule, unless the corporation by-laws provide otherwise.

Article 48. A stockholder should register at the office of the local official before his withdrawal. His responsibility for the unlimited liability of the corporation continues to exist until two years after the registration of his withdrawal. The above rule also applies to a stockholder who has transmitted his stock to another with the consent of all the other stockholders.

5. *Dissolution of Corporation.*

Article 49 A Corporation shall be dissolved under any one of the following conditions:

(a) At the conclusion of a pre-determined term of existence or when any prescribed circumstance takes place.
(b) When the business attempted is done or when the business is no longer possible.
(c) When all the stockholders agree to dissolve.

(d) When only a single stockholder remains.
(e) When combined with other corporations.
(f) When bankrupted.
(g) At the order of the local official.

Article 50. A corporation dissolved for the reason mentioned under (a) of the above article, may be re-organized and continue business with the consent of two or more stockholders. Those stockholders not willing to join may withdraw.

Article 51. With the exception of bankruptcy and combination, (e) and (f), a dissolved corporation shall be required to register at the office of the local official within 15 days of dissolution.

Article 52. A corporation may combine with any other corporation with the consent of all its stockholders.

Article 53. Within 15 days after the decision to combine is passed, the corporation shall have ready a complete inventory of all its belongings and a balance sheet of all liability and resources.

The corporation shall notify all its creditors and publish its decision to combine and the manner of subsequent arrangements within 15 days after such decision is passed. It shall also set a time limit for parties wishing to complain; the time limit shall not be under three months.

Article 54. A corporation shall not combine until the above-mentioned time limit is elapsed, and any complaining creditor is satisfied with proper refund or security.

Article 55. A corporation which combines without proper notification or in spite of the complaining creditors shall be deprived of its privilege to bring suit against its creditors.

Article 56. A corporation shall register at the office of the local official within 15 days after the combination takes effect, as follows:

(a) The corporation which does not lose its identity after combination takes place shall register according to the rules governing alteration.
(b) The corporation which loses its identity after combination shall register according to the rules governing dissolution.
(c) The corporation which is to be re-organized after dissolution shall register according to the rules governing organization.

Article 57. The duties and rights of the corporation which loses its identity in combination shall pass over to the other corporation which continues to exist or which is to be reorganized.

Article 58. Whenever necessary, the local official may dissolve the corporation at the stockholders' request.

If any stockholder is willing to be held responsible for the above-mentioned circumstance, the local official may refrain from dissolving the corporation at the request of the stockholders but discharge the stockholder whose interest is in conflict with that of the corporation.

The discharged stockholder so declared shall receive a pro-rata share from the corporation based upon the estimated market value.

6. *Liquidation.*

Article 59. The corporation shall not be considered dissolved within the period of liquidation.

Article 60. Unless one of the stockholders or a third person is specially designated by a majority vote of the stockholders, the final processes of a dissolved corporation shall be left in the hands of all the stockholders.

Article 61. In case the manner of disposal of the property of a dissolved corporation has been decided upon, an inventory and a balance sheet should be prepared within 15 days after dissolution.

The relation between the dissolved corporation and its creditors is stipulated under Article 53 (b), Article 54 and Article 55.

Article 62. At the death of any stockholder, the duty and right of receivership shall pass to his legitimate heir. In case there are several heirs, only one is entitled to take part in the work.

Article 63. With regard to a corporation dissolved under Article 49 (d) and (g), the local official may appoint the receiver at the request of the attorney

Article 64. The receiver appointed by the stockholders may be removed at any time by a majority vote of the stockholders. Whenever necessary, the local official has the right to remove the receiver at the request of the attorney or of any person closely related to the corporation.

Article 65. The appointed receiver shall be required to register his name and address at the office of the local official within 15 days after his appointment.

The change or dismissal of the receiver shall be similarly registered within the same time limit.

The appointment or dismissal of a receiver by the local official shall be duly announced before such appointment or dismissal takes effect.

Article 66. The duty of the receiver shall be as follows:

(a) To transact the routine business.
(b) To collect all bills and accounts received, and to pay all debts and liabilities.
(c) To proportionately divide the corporation property as shown on the balance sheet.

The receiver shall have the right to transact all business incidental to the carrying on of the above-mentioned duties, whether in a lawsuit or anything else.

Article 67. In case there are several receivers, all business transactions are to be settled by a majority vote; but in its relation to a third party, each receiver shall have specific duties and rights.

Article 68. Any restriction set upon the power of attorney of the receiver is void in relation to a third party not duly informed of such restrictions.

Article 69. As soon as the receiver takes up his position he shall investigate into the existing status of the corporation's resources, and submit a complete inventory and balance sheet to the stockholders.

At the request of any stockholder, the receiver shall render a report based upon the facts of his findings.

Article 70. All receivers, including those appointed by the local official, shall carry on their duties in accordance with rules laid down by the stockholders and others intimately associated with the corporation.

Article 71. The receiver shall notify the creditors of the corporation at least three times within two months after taking up his position, and demand from them a statement of credits within a time limit. The time limit so fixed should not be under three months.

Before the termination of the time limit so fixed, no return or transfer of money should be made to any one or more particular creditors.

The receiver shall notify without failure all the creditors alike.

Those creditors who render statements after the time limit expired, shall be allowed to ask for a consideration after all the other creditors are satisfied.

Article 72. In case the available resources of the corporation are insufficient to cover all the liabilities, the receiver shall make demands for additional funds of the stockholders. If the stockholders fail or are unable to make these additional payments, the receiver shall announce the bankruptcy of such stockholders with notification to the proper authorities.

The duty of the receiver is considered as at an end when he has handed over all the corporation properties to the deputy in charge of bankruptcy.

Article 73. The receiver shall not make allotments of the corporation's resources to its stockholders until all the debts have been paid.

Article 74. The balance left over after all the creditors are satisfied shall be allotted to the stockholders pro-rata to their respective amount of capital.

Article 75. The receiver shall render the final accounts to the stockholders as soon as all dealings of the corporation are settled. If no complaint is made within one month after this final rendering the arrangements shall be considered satisfactory to all the stockholders except when the receiver has misbehaved in any way.

Article 76. After all final accounting is done and all claims settled, the receiver shall report and register at the local official's office.

Article 77. All documents, accounts, etc , relating to the business of a dissolved corporation should be kept in a safe place for 10 years. The person to have charge of these shall be determined by a majority vote of the stockholders. In case of dispute, the local authority shall render a decision. All the documents and accounts for safe-keeping shall be available for inspection to any person connected with the corporation.

Article 78. If a corporation is ordered by the authorities to discontinue or if the registration is cancelled for any

reason, the process of winding up shall be the same as in the case of dissolution, and the receiver shall be appointed by the local authority at the request of the attorney or of any party in close connection with the corporation.

Article 79. The unlimited liability of the stockholders shall be terminated at the end of 5 years after the dissolution of the corporation is registered except when there are other special laws providing for a shorter time limit.

The creditor shall have the right to demand payment as long as there is any resource left undivided even after the expiration of 5 years.

Section III

Partnership Corporation

Article 80. The partnership corporation is organized by members of both limited and unlimited liability. The members of limited liability are only responsible for the amount of capital subscribed.

Article 81. Apart from the specified regulations enumerated below, the same rules governing Unlimited Corporations are applicable in the case of the members of unlimited liability in a partnership corporation.

Article 82. The bye-laws of the partnership corporation shall state the kind of liability each stockholder has, aside from all the other items designated in Article 10.

Article 83. The partnership corporation shall register at the office of the local official within 15 days after the formulation and adoption of its bye-laws. The registration shall include a statement of the number and kind of stockholders aside from the items enumerated under Article 11.

Article 84. The members of limited liability shall pay for its share of capital in currency or equivalents in other kind of properties.

Article 85. All the members of unlimited liability shall have power to transact business for the corporation, if not otherwise specified.

Article 86. When there are several members with unlimited liability, the transaction of business shall be carried on with a majority vote of them all.

Article 87. The appointment and dismissal of the manager shall be made after a majority vote of all the unlimited members is taken. This rule is applicable even when certain members are specially designated to have charge of the business.

Article 88. The members of limited liability shall have power to inspect the inventory and balance sheet or to investigate into the business of the corporation at the end of each fiscal year whenever occasion warrants, special power shall be granted to members of limited liability, at their own request, to inspect the business conditions of the corporation.

Article 89. The members of limited liability shall not be allowed to transfer part or whole of their stock to a third party without the unanimous consent of the members of unlimited liability.

Article 90. A member of limited liability shall be free to undertake the same kind of business for himself or for a third party and shall also be free to join other corporations as an unlimited liability member.

Article 91. Apart from the special representative or attorney appointed by the stockholders or provided for in the bye-laws of the corporation, each member of unlimited liability has the power to represent the corporation in business transactions.

Article 92. The members of limited liability shall not carry on any business transactions or represent the corporation in any way.

Article 93. In case a member of limited liability behaves in such a way as to make others believe that he has unlimited liability, his liability towards a third person not knowing the fact, shall be the same as the unlimited members.

Article 94. The members of limited liability shall not necessarily withdraw from the corporation in case of insanity. In case of death, the stock goes to his heir.

Article 95. In case of unanimous withdrawal of all the members of limited liability or of all the me mbers of unlimited liability, the corporation shall naturally be dissolved. In the former case, however, the members of unlimited liability may reorganize themselves into an unlimited corporation.

Article 96. When a partnership corporation is transformed into an unlimited corporation, proper registration of the dissolution of the former and establishment of the latter should be made at the offices of local authorities within 15 days of the transformation.

Section IV

Joint stock limited corporation

1. *Organization*

Article 97. A joint stock limited corporation shall have at least 7 persons as incorporators or promoters.

Article 98. The incorporators shall formulate and sign bye-laws including the following points:

(a) Trade name.
(b) Nature of business undertaken.
(c) Amount of total capitalisation and amount per share of stock.
(d) Location of head office and branch offices.
(e) Manner of publicity.
(f) Requirements of eligibility as directors.
(g) Name and address of promoters.

In case of indecision, (d) (e) and (f) may be left blank to be filled in at the stockholders' meeting.

Article 99. The following items shall not be effective unless duly inserted in the bye-laws:

(a) Term of existence of the corporation and circumstances under which to dissolve.
(b) Amount of excess of selling price of stock over the par value.
(c) Special privileges to be granted to promoters.
(d) In case payment of stock is made with some form of property (not currency), the name of such stockholder and the form and value of property rendered and the number of shares assigned to him should be explicitly stated.
(e) Any initial expenses to be paid by the corporation and the amount of compensation to be granted to promoters.

Article 100. In case all the stocks are subscribed by the promoters, the corporation shall be considered in existence from that time on.

Article 101. When the stocks are all subscribed by the promoters, at least one-fourth of the subscribed amount should be paid in as soon as possible. The directors and auditors are then to be elected by a majority vote of all the promoters.

Article 102. As soon as the directors are elected, the corporation shall report to the local authority for a legal inspection, —whether the required payment of capital has been made and whether the requirements (c) (d) (e) under Article 99 have been adhered to.

Article 103. The local authority, after securing a report of the inspector, shall have the right to modify the amount of privilege and compensation for the promoters, if the latter is excessive and extortionate. If any property rendered by the stock holder in lieu of currency be found to be excessively estimated, corresponding reductions may be enforced, but the stockholder shall be allowed to pay currency if he thinks the official estimation too low.

Article 104. In case the promoters fail to subscribe all the capital, they must get additional subscribers. The capital must be fully subscribed before organization.

Article 105. The promoters shall prepare a stock ledger of the standard form, and application blanks to be filled in and signed by subscribers. The following points shall be explicitly stated:

1. Date of formulating the bye-laws.
2. All the items listed under Articles 98 and 99.
3. Amount of capital stock subscribed by the promoters.
4. Amount of first payment.

In case the price of subscription exceeds the par value of the stock, the subscriber shall state the amount to be paid.

Article 106. The subscribers of stock shall be held responsible for the amount subscribed.

Article 107. The subscription price shall not be less than the par value of the shares. The first payment shall not be less than one-fourth of the par value.

Article 108. As soon as the stocks are fully subscribed, the promoters shall call upon the subscribers for the first payment.

In case the subscription price exceeds the par value, the amount in excess shall be paid with the first payment.

Article 109. Upon failure of the subscriber to make the payment, the promoter shall notify the said subscriber, setting a time limit beyond which, if the payment is not made, his subscription is to be cancelled. The time limit so set must be over one month.

After such notification is properly served and the subscriber fails to pay, the subscription is cancelled and another subscriber is to be secured in his place. If any damage is incurred as a consequence of the subscriber's non-payment, the promoters may demand an indemnity.

Article 110. As soon as the first payments are all collected, the promoters shall call the meeting of organization.

Article 111. The proceedings of the meeting shall be conducted in accordance with (a) (b) (c) under Article 145, (a) and (c) under Article 147 and (a) and (b) under Article 150.

The meeting shall have the majority of the subscribers representing the majority of the total capital stock as a quorum. All business shall be transacted by a majority vote.

Article 112. The promoters shall report all the previous transactions during the meeting.

Article 113. Directors and auditors shall be elected during the first meeting.

Article 114. The directors and auditors shall make the following investigations and report to the meeting:

(a) Whether the capital stock is fully subscribed.
(b) Whether the first payments are duly paid.
(c) Whether the requirements of (c) (d) and (e) under Article 99 are properly fulfilled.

In case the directors and auditors are elected by the promoters themselves, another inspector may be elected during the meeting to investigate.

Article 115. The special privileges and compensation to be granted to promoters as well as the initial expenses are subjected to revision by the first meeting if they are in any way excessively stated.

The properties rendered by subscribers in lieu of payment, shall be re-estimated. If in excess of the market values, proper reduction may be made by a decision during the meeting; but the subscriber shall always be allowed to make payments in currency in exchange for the property rendered.

Article 116. The promoters shall be held responsible for any portion of the capital stock left unsubscribed and for the non-payment of the first instalment on the part of the subscribers.

Article 117. In case after the two foregoing articles are enforced, there are still other damages to the corporation, the promoters are liable to indemnity.

Article 118. The first meeting of the stockholders may modify any regulation previously formulated or may stop the organization of the corporation if necessary.

Article 119. The corporation shall be considered in existence at the conclusion of the meeting of the stockholders, except when the capital stocks are fully subscribed by the promoters.

Article 120. If the first payments are not made one year after the stock is fully subscribed or if the promoters fail to call the first meeting of the stockholders within half a year after the first payments are called the subscribers shall have the right to cancel their subscription and demand refunds.

Article 121. Within 15 days after organization, the promoters shall register at the offices of local authorities as follows:

(a) Repeat (a) (b) (c) and (e) under Article 98.
(b) Head office and branch offices.
(c) Date of organization.
(d) Amount paid in by subscribers.
(e) Name and address of directors and auditors.
(f) In case of fixed duration, state the length of period to exist or the circumstances for dissolution.
(g) If interest is to be distributed before the commencement of business, state the rate.

Article 122. In case of the establishment of additional branch offices or the removal of any office from one place to the other or the alteration of any of the registered items, Articles 12, 13 and 14 are applicable.

Article 123. After the registration of the corporation, the subscribers shall not cancel their subscription with complaints of fraud or of having acted under compulsion.

2. *Stocks*

Article 124. The capital of a joint stock corporation shall be divided into shares. The par value of each share shall not be less than fifty dollars except those shares to be paid in one instalment when twenty dollar shares are allowed.

Article 125. The corporation may issue preferred stock in accordance with regulations.

Article 126. The liability of the stockholder ends with the full payment of the amount subscribed for.

All payments of stock shall be made in available funds and not in outstanding credits.

Article 127. In case a single share is jointly owned by several persons, one of them shall be assigned to exercise all the duty and right of the stockholder, but all of them are jointly liable for the total amount subscribed for.

Article 128. No shares of stock shall be issued until after the corporation is properly registered.

The share certificate shall be declared void if issued contrary to the foregoing rule, and the subscriber may demand damage.

Article 129. Each stock certificate shall have an assigned number and be signed by the director. The following points are to be stated on the certificate:

(a) Trade name of the corporation.
(b) Date of organization and registration.
(c) Total capitalisation and par value of each share.
(d) If preferred stock, state the amount and nature of preference.
(e) If the payment of stock be made in instalments, state the amount to be paid each time.

Article 130. The shares of a corporation may be transferred to others at the stockholder's will without consulting the corporation unless otherwise stipulated in the corporation laws. Shares shall not be transferred or be contracted to be transferred from one person to another until the corporation is properly organized and registered.

Article 131. If the certificate is one of the registered kind, due change of name and address on the stock ledger and on the certificate is necessary before the transference becomes effective.

Article 132. A corporation shall not buy its own shares or accept such as security. The shares reverted to the corporation in any way shall be disposed of at an early date.

Article 133. The corporation shall under no circumstance cancel any of its shares except when the capitalisation is reduced.

Article 134. In demanding payment from shareholders, notification shall be sent to the parties concerned at least a month ahead of time.

Upon the failure of payment at the stated time, the corporation shall deliver another notification setting a time limit (over a month at least) beyond which if the payment is not made, the rights of the shareholder shall be withheld.

Article 135. The corporation shall demand interest for the period after due date until the payment is made. In case a special fine is fixed in the bye-laws, for non-payment when due, the corporation shall have the right to enforce it.

Article 136. If the shareholder fails to pay after the corporation has done everything in accordance with Article 134. the shareholder shall lose all the rights in connection with his shares.

Article 137. In case the delinquent shareholder has secured his share through transferring, the corporation shall look up the name of the original shareholder and demand payment from him within a month. When the original shareholders receive the above notification, the one who makes the most prompt payment shall secure the share. In case nobody responds after notification, the corporation shall dispose of the said shares at auction. If the amount thus secured is not sufficient to cover the payment due, the corporation may sue the delinquent stockholder for the balance.

Article 138. The liability of the original shareholder terminates two years after proper registration and recording in the stock ledger of the fact of transference.

Article 139. Until the full payment for the share is made, the corporation shall not issue certificate at the request of the shareholder.

In the case of a non-registered certificate, the shareholde. may request to have it changed to a registered form at any time

Article 140. The stock ledger shall contain a detailed account of each share with systematic denotations. The following record should be made:

(a) The number of shares subscribed by each stockholder, and the number of certificate issued.

(b) The name and address of the stockholder.

(c) The amount paid in by each stockholder and the date of such payments.

(d) The date of issue of each certificate.

In the case of a non-registered form, the quantity and numbers of certificates and dates of issue shall be recorded. In the case of preferred stock, the word preferred should be put under each number of certificate issued.

3. *Regular Meeting of Stockholders*

Article 141. The regular meeting of stockholders shall be held at least once a year at a fixed time after the conclusion of each fiscal year.

Article 142. Apart from the regular meetings at fixed intervals, special meetings may be held whenever necessary.

Article 143. The meetings of stockholders shall be called by the directors, except when specified by the laws of the corporation.

Article 144. Questions brought up during these meetings shall be decided by a majority vote of the stockholders present at the meeting, except when specific rules are inserted in the law of the corporation.

Article 145. For each share of stock, one vote is to be allowed; but when the number of shares held by one person exceeds eleven, special limitation regarding his voting power is to be allowed if specified in the bye-laws.

In case of proxy, the proxy's certificate shall be deposited with the corporation as a subsequent proof.

When a matter is brought up for a decision during the meeting concerning a particular stockholder, the said stockholder shall refrain from exercising his voting power nor shall he be allowed to act as another's proxy in the said case.

The holder of a non-registered certificate shall not be allowed to vote unless he should deposit his certificate with the corporation five days before the meeting takes place.

Article 146. Any stockholder representing one-tenth or more of the total capitalisation shall have power to request the directors to call special meetings, by presenting the matter to be discussed and giving reasons. In case the directors fail to respond to such a request within 15 days, the said stockholder shall call the meeting himself with consent of the local authorities.

Article 147. The corporation shall notify its stockholders one month before the time set for the meeting.

The corporation shall announce and publish the date of its meeting 40 days ahead of time as a notification to holders of non-registered certificates. The notification and announcement shall include a statement of the purpose of the meeting and a description of the matters likely to be brought up for discussion.

Article 148. The minutes of the meeting recording all transactions shall be signed by the Chairman. The minutes shall include a list of stockholders present, the date and place of meeting, the name of the Chairman and the process of decision.

Article 149. The regular meetings shall be the occasion to discuss and pass on the reports of the directors and auditors, and to decide upon the disposal of profits and surplus.

In order to examine the above mentioned reports, a special inspector may be elected during the meeting.

Article 150. In case the meeting is called or any decision is made contrary to the law or regulations of the corporation, any stockholder may report the same to the local authority to declare such decisions void. The report of this nature shall be made within one month after the action takes place.

Article 151. Aside from the directors and auditors, any ordinary stockholder who sues to nullify a corporation decision must deposit his shares with the corporation or additional security may be demanded at the request of the corporation.

4. *Directors*

Article 152. The directors shall be elected by the stockholders from their own members.

Article 153. A director shall deposit his shares of stock with the auditor as soon as elected.

Article 154. The compensation for the directors shall be fixed at the stockholders' meeting if not previously fixed in the bye-laws.

Article 155. The term of directorship shall not be over three years, but any person shall be eligible for successive terms.

Article 156. The corporation shall have the right to dismiss any of its directors by a majority vote at the stockholders' meeting, provided there are good reasons. In the absence of any good reason, the dismissed director may demand an indemnity.

If a director resigns without good reason at a time when it would result detrimentally to the corporation, he shall be held responsible for the damages.

Article 157. The directors shall transact all business with a majority vote among themselves unless otherwise specified in the bye-laws. The appointment or dismissal of the manager shall be effected in a similar way.

Article 158. Each of the directors may individually represent the corporation. Articles 28, 31, 32 and 33 are also applicable in the case of directors.

Article 159. The directors shall deposit a copy of the bye-laws and minutes of the meetings at every head and branch office and keep the stock ledger and the counterfile of corporation loans at the head office.

The bye-laws and documents mentioned above shall be available for inspection to stockholders and creditors in accordance with the specifications under Article 22.

Article 160. The counterfile of the corporation's loan account, shall record the following:

(a) Name and address of the corporation creditors.

(b) The classified number of the loan agreements.

(c) Total amount of liability and the amount due to each bondholder.

(d) Rate of interest on the debts owed by the corporation.

(e) The method and time of redeeming the bonds.

(f) The date of issuing such bonds.

(g) The date of redeeming such bonds.

(h) If the bond is non-registered state the classified number and the date of issue.

Article 161. When the corporation loses as much as half of its total capital, the director shall call a special meeting of the stockholders and report on the prospect.

As soon as the total resources of the corporation become insufficient to cover all the liabilities, the directors shall report and announce the insolvency of the corporation.

Article 162. With the approval of the auditor, a director may transact business with the corporation on his own behalf or on behalf of a third party.

Article 163. The directors shall carefully observe the rules of the corporation and transact business with discretion. If a director shall act contrary to this principle or misuse the trust in any way, he shall be liable for damages to the corporation.

The directors shall be held responsible for any action contrary to the law and regulation of the corporation and shall be liable for damages done to a third party even if such action be in accordance with the resolutions passed by the stockholders. Exceptions are to be made in case the said directors have, before the stockholders' meeting, objected to and have announced their disapproval to the auditor.

Article 164. If a resolution to impeach a director fail to pass in a stockholders' meeting any stockholder representing one-tenth or more of the capital shall have the privilege to make a similar request to the auditor; the latter upon receiving such a request shall promise to start on the process within one month.

The stockholder requesting an impeachment shall be required to deposit his shares with the corporation to be returned at the conclusion of the lawsuit. The said stockholder shall also submit additional securities at the request of the auditor. In case a decision is rendered against the corporation, the stockholder shall be liable for the damages.

Article 165. Whether the corporation is suing the directors or the directors suing the corporation, the corporation shall be represented by the auditor unless a special legal representative be elected at the stockholders' meeting.

A stockholder representing one-tenth or more of the total capital shall have the right to designate a special representative in suing any of the directors.

5. *Auditor*.

Article 166. The auditor shall be elected by and from among the stockholders

Article 167. The compensation of the auditor shall be fixed at the stockholders' meeting unless previously fixed in the bye-laws.

Article 168. The term of the auditor shall not exceed one year, but he shall be eligible for successive terms.

Article 169. Article 156 (a) is applicable in the case of the auditor.

Article 170. The auditor shall have power to demand a report of the corporation's business from the directors at any time and to inspect the accounts and documents of the corporation whenever he wishes.

Article 171. The auditor shall check up all reports on documents rendered by the directors and report his findings at the stockholders' meetings.

Article 172. Whenever he deems necessary, he shall have power to call special meetings of the stockholders. During such meeting, the stockholders may elect special inspectors.

Article 173. In case there are two or more auditors each may exercise his right independent of the others.

Article 174. The auditor shall not be allowed to be the director or manager at the same time. But in case of vacancy on the board of directors, before new election can be brought about, then one of the auditors may be called upon to fill the vacancy through mutual agreement of the directors and the auditors.

The auditor chosen to be acting-director, shall not exercise his rights of auditorship until his report and accounts as director are accepted at the stockholders' meeting. Article 27 is not applicable in the case of an auditor temporarily acting as a director.

Article 175. When any of the directors transacts business with the corporation on his own behalf or on behalf of a third party, the auditor shall be called upon to represent the corporation.

Article 176. If an auditor fails to fulfil his duty, he is liable for any damage to the corporation or to a third party.

Article 177. In case the stockholders resolve to impeach the auditor, or if such resolution fails to pass and any stockholder representing one-tenth or over of the total capital requests the director to impeach such auditor, the corporation shall start the process within one month after the request is lodged.

A special attorney for prosecution may be elected at the stockholders' meeting or designated by the stockholder making the request.

The stockholder requesting prosecution of the auditor shall deposit his shares or render additional securities at the request of the directors. In case the verdict is against the corporation, the said stockholder shall be responsible for all the damages.

6. *The Accounting of the Corporation.*

Article 178. The board of directors shall prepare reports as follows to be handed over to the auditors 15 days before the date of regular meeting.

(a) Inventory of corporation properties.
(b) Balance sheet of the corporation's resources and liability.
(c) A statement of the business operation.
(d) A profit and loss account.
(e) Recommendations in regard to the sinking fund and dividends.

Article 179. The foregoing reports of the directors together with the report of the auditor shall be kept at the corporation head office during the regular meeting. They shall be available for inspection to all the stockholders and creditors of the corporation.

Article 180. The directors shall submit the reports for discussion, approval and acceptance by the stockholders at the meeting.

Article 181. After the directors' reports are duly accepted the directors shall announce and publish the balance sheet.

Article 182. The responsibility of the directors and auditors shall be considered at an end when all the reports are accepted, except when any fault be d scovered later on.

Article 183. Before any dividend is declared, at least one twentieth of the net profit shall be laid aside as a reserve fund. The amount of selling price of stocks in excess of the par value shall also be reserved.

The total reserve shall be one-fourth of the capital.

Article 184. No dividends shall be distributed to the stockholders until all previous losses are made good and the required reserve fund laid aside.

Article 185. When dividends are distributed contrary to the above rule, the creditors of the corporation shall have the right to enforce a reimbursement of capital.

Article 186. In case the necessary preparation for an enterprise takes more than two years to complete, interest may be paid upon the stocks before commencement of business provided the local authority approves and laws of the corporation allow.

The interest so paid shall not exceed 6 per cent. per annum.

Article 187. The allotment of profit shall be based upon the amount of capital paid in by each stockholder, except when these are preferred stocks.

Article 188. Any stockholder representing one-tenth or over of the total capital shall have the right to request the local authority for the appointment of an official inspector to investigate into the business of the corporation.

Article 189. In case the local official deems necessary after receiving the inspector's report, he shall notify the corporation auditor to call a special meeting of the stockholders.

7. *Corporation Bonds*

Article 190. The corporation shall not be allowed to issue bonds until such resolution is properly passed by the stockholders in accordance with Article 199 (b).

Article 191. The total amount of bond issue shall not exceed the total amount of paid-in capital at any time.

If according to the latest balance sheet, the total resources of the corporation are less than the paid-in capital, the bond issue shall not exceed the value of the available resources.

Article 192. The par value of each bond shall not be less than twenty dollars.

Article 193. In case the pre-fixed rate for redeeming these bonds exceeds the par value, all the bond holders shall be treated alike.

Article 194. When the bonds are issued, the directors shall announce and publish the following:

(a) The items under Article 160 (c) (d) and (e).
(b) Trade name of corporation.
(c) In case there is a previous bond issue, state the balance left to be paid.
(d) The fixed price for the bonds or the lowest rate at which the bonds may be sold.
(e) Total capitalisation and amount of paid-in capital.
(f) The value of present resources according to the latest balance sheet.

Article 195. When the bonds are fully subscribed, the directors shall demand payment for the amount subscribed.

When the bonds are all disposed of and money collected, notification in accordance with Article 160 (c) (d) and (e) shall be given to the local authorities at the places where the head and branch offices are located within 15 days.

Article 196. Each bond certificate shall have a classified number and be signed by the directors together with remarks in accordance with Article 194 (a) and (b).

Article 197. When a bond certificate is of a registered form proper registr.tion of change must be made on the counterfile as well as on the certificate before it can be transferred to a third person.

Article 198. Article 139 is applicab'e in the case of bonds.

8. *Alteration of Bye-laws*

Article 199. The bye-l ws of a corporation shall not be altered or modified in any way e cept by resolutions p ssed at the meeting of stockholders.

T e above-mentioned resolution shall be passed by a major ty vote of a majority of stockholders representing over half of the total cap tal stock.

In case the stockholders present at the meeting do not constitute a quorum, a majority vote may be taken of those who are present and a tentative resolution drawn to be subm tted to all the stockholders, or if non-registered stocks are issued, to announce and pub'ish the resolution with a notice for a special meeting to be called with n one month. The said resolution shall be definitely passed or rejected during the second meeting.

The above stipulation shall not be applicable in case the desired alteration has to do w th the nature of business.

Article 200. A corporation shall not increase its capital until the ex sti g capitalisation has been fully paid.

Article 201 In increa ing the capital of a corporation, preferred stock may be issued, in which case, the advant ge and rights of preferred stockholders must be specified in the bye-laws.

Article 202. In case the resolutions of the common stock-

holders are in conflict with the prescribed advantages and rights of the preferred stockholders, the same resolution shall be brought up and considered in a preferred stockholders' meeting, and the same rules governing stockholders' meeting shall be in force.

Article 203. In issuing new stocks, the original stockholders shall be given the preference. Only the remaining shares left unsubscribed can be disposed of among the outsiders.

Article 204. In increasing the capital of a corporation as soon as the first payments have been made, the directors shall call a meeting of the stockholders to report on the issue of new stock.

Article 205. The auditor shall investigate the following and report to the meeting:

(a) Whether the new issue has been fully subscribed.
(b) Whether the first payment has been make in full.
(c) In case of a subscriber rendering personal property in lieu of payment on shares, whether the valuation of such property is proper.

The stockholders may also elect a special agent to inspect and report on the above mentioned subjects.

Article 206. In case the said property is found to be over-estimated, Article 115 (b) shall be enforced.

Article 207. The directors shall be held responsible for any stock left unsubscribed or that which is subscribed and not paid for or that which has been subscribed and subsequently cancelled.

Article 208. At the conclusion of the stockholders' meeting specified in Article 204, the corporation shall register at the local authorities as follows:

(a) Amount of increase in capitalization.
(b) Date of the passing of resolution to authorize such an increase.
(c) The amount of paid-in capital of the new issue.
(d) In case of preferred stock, the special advantage and rights of preferred stockholders. Before registering at the office of local authorities, no stock certificate shall be issued and no new shares may be transferred or contracted to be transferred.

Article 209. The stock certificate to be issued to the new stockholders shall be signed by the directors and record the following:

(a) Trade name of the corporation.
(b) Date of registration when the capitalization is increased.
(c) The total amount of the new stocks and par value per share.
(d) The classified number of the new stock and the rights and advantages of the preferred stockholders.

Article 210. Articles 106-109, Articles 120-123 and Article 128 (b) are applicable in the case of the new stock issue.

Article 211. In case of a reduction in the capitalization, the manner of reduction shall be determined at the stockholders' meeting.

Article 212. Articles 53-55 are applicable in the case of a reduction of capitalization.

9. *Dissolution*

Article 213. A joint stock limited corporation shall be dissolved for any of the following reasons:

(a) At the expiration of a previously fixed period, or when certain pre-determined circumstance takes place.
(b) At the completion of the business undertaken, or when the business becomes no longer possible.
(c) By resolution passed by the stockholders' meeting.
(d) When the registered stockholders are less than seven in number.
(e) When combined with other corporations.
(f) Bankruptcy.
(g) At the order of the official.

Article 214. With the exception of bankruptcy, the directors shall notify the stockholders when a corporation is dissolved. In case of non-registered certificates, a public announcement is necessary.

Article 215. With the exception of bankruptcy and combination, the corporation shall register at the office of local authorities within 15 days after dissolution takes place.

Article 216. The resolution causing dissolution or combination with another corporation shall be passed at the stockholders' meeting in accordance with Article 199(b).

Article 217. In case of a dissolved corporation combining with another, Articles 53-57 are applicable.

10. *Winding up*

Article 218. With the exception of bankruptcy and combination, the winding up of a dissolved corporation shall be put in the hands of the directors, unless special agents are elected at a stockholders' meeting.

If no suitable person is to be secured, the local official shall appoint a receiver at the request of any one closely connected with the corporation.

Article 219. With the exception of the receiver appointed by the local authority, the stockholders may dismiss any other at any time.

The receiver appointed by the local official may be removed at the request of the auditor or of any stockholder representing over one-tenth of the capital, giving good reasons.

Article 220. Immediately after taking up his position, the receiver shall investigate into all the corporation resources and prepare an inventory and balance sheet to be submitted at the stockholders' meeting.

The stockholders may appoint a special agent to check the report of the receiver; when the report is accepted by the stockholders, the receiver shall announce and publish the balance sheet.

Article 221. If the calling of the stockholders' meeting and the manner of passing resolutions are in any way in conflict with the laws or regulations of the corporation, the receiver may request the local authority to nullify the resolutions so passed.

Article 222. In connection with the process of winding up, the duties and rights of the receiver shall be the same as those of directors, apart from the special stipulations given here.

Article 223. In case any of the creditors fails to make the required statement within the specified time after due notification, he shall only be considered after all the other creditors are satisfied.

Article 224. The expenses of winding up shall be paid out of the corporation's resources.

Article 225. In case of any remaining resources after all creditors are satisfied, the amount shall be apportioned among the stockholders pro rata to their respective number of shares, except when there is special stipulation in regard to preferred stocks.

Article 226. At the conclusion of the winding up, the receiver shall submit a report to the stockholders' meeting for approval. The stockholders may elect a special agent to audit the receiver's account and to check up his report. When the report is accepted the receiver is considered relieved from all responsibilities of the corporation except when any fault is discovered later on.

Article 227. All accounts and documents of a dissolved corporation shall be kept for 10 years after the final registration. The custodian of such documents shall be appointed by the local authority at the recommendation of the receiver or those in close connection with the corporation.

Article 228. Even after the process of liquidation is concluded, the local authority may appoint a new receiver to re-open the process, if there are other resources of the corporation available for allotment.

Article 229. Articles 59, 65, 66, 71, 72(b), 76, 78, 146, 147, 150, 151, 163(b), 165, 170 and 171 are applicable in winding up a limited corporation.

SECTION V

Joint Stock Partnership Corporation

Article 230. Among the stockholders of a joint stock partnership corporation, at least one person shall have unlimited liability. The rest are liable for the amount they subscribed.

Article 231. The laws governing a partnership corporation shall be applicable to a joint stock partnership corporation in regard to the following:

(a) The relation between the unlimited member and the corporation.
(b) The relation between the unlimited member and the third party.
(c) The withdrawal of the unlimited member.

As to the rest, the laws governing the joint stock limited corporation are applicable except otherwise specified under this chapter.

Article 232. In organizing this kind of corporation the promoter with unlimited liability shall formulate and sign the bye-laws specifying the following points:

(a) Article 98 (a) (b) (d) and (e).

(b) Amount of total capitalisation and par value per share.
(c) Name and address of unlimited members.
(d) The amount subscribed; if payment is made in other form than currency, value and description of the property rendered.

Article 233. The unlimited member shall dispose of the shares.

Article 234. The subscription blank shall state the following:

(a) In accordance with Article 99, Article 105 (a) and (d), and Article 232.
(b) The amount subscribed by each unlimited member.

Article 235. During the meeting of organization, an auditor shall be elected from among the stockholders. The unlimited member shall under no cirumstances serve as an auditor.

Article 236. The unlimited member may make suggestions and recommendations at the meetings, but shall under no circumstances exercise the power of voting.

Article 237. The auditor shall find out whether the shares have been fully subscribed and the kind and amount of payment made by subscribers other than in currency, and report the findings to the stockholders' meeting.

Article 238. At the conclusion of the first stockholders' meeting, the corporation is considered organized and due registration at the office of local authorities shall be made within 15 days as follows:

(a) In accordance with Article 98 (a) (b) (c) (e) and Article 121 (b) (c) (d) (f) (g).
(b) Name and address of the unlimited liability members.
(c) The amount subscribed by the unlimited members, and the kind and amount of payment other than in currency.
(d) The name and address of unlimited liability member who is specially designated to represent the corporation.
(e) Name and address of the auditor.

Article 239. In regard to the unlimited liability member designated to represent the corporation, the laws governing the directors of a limited corporation are applicable with the exception of Articles 152, 153, 154, 155 and 156.

Article 240. With regard to transactions requiring the unanimous approval of the stockholders, the same resolution shall be passed by the stockholders' meeting as well as by the unlimited liability members. In adopting the above mentioned resolution, Article 199(b) is applicable.

Article 241. The laws governing the dissolution of a partnership corporation are applicable here.

Article 242. When all the unlimited liability members withdraw from the corporation, the rest of the stockholders may reorganize into a limited corporation in accordance with Article 199(b).

In case of the above-mentioned circumstances, the stockholders shall at once take the necessary steps for the organization of the limited corporation at the stockholders' meeting. At this meeting, the limited member who has subscribed common stocks shall have power as ordinarily regulated.

Article 243. The winding up of a dissolved corporation of this kind except those dissolved on account of bankruptcy, or at the order of the local authority, shall be jointly undertaken by all the unlimited liability members (or a representative receiver elected by them) and the duly elected receiver of the common stockholders, unless otherwise stipulated in the bye-laws.

The unlimited liability members shall elect their receiver by a majority vote. The number of receivers elected by the unlimited liability members shall be the same as those elected by the common stockholders.

Article 244. In regard to unlimited liability members, Article 79 is applicable.

Article 245. After the report and accounts of the receiver have been duly approved and accepted by the common stockholders in accordance with Article 220 (a) and Article 226, the receivers shall also try to secure the unanimous approval of unlimited liability members.

Article 246. The unlimited liability members may at any time dismiss the receiver elected by them with a majority vote among themselves.

Article 247. After the corporation is re-organized according to Article 53 (b) and Article 54, and after the consent of its creditors has been secured, proper registration of the dissolution of the joint stock partnership corporation and organisation of the joint stock limited corporation shall be made at the office of the local authorities within 15 days.

SECTION VI.

Fines.

Article 248. The stockholder having charge of the business, the promoter, director, or auditor or receiver who is found guilty of the following shall be fined not less than five dollars nor exceeding five hundred dollars:

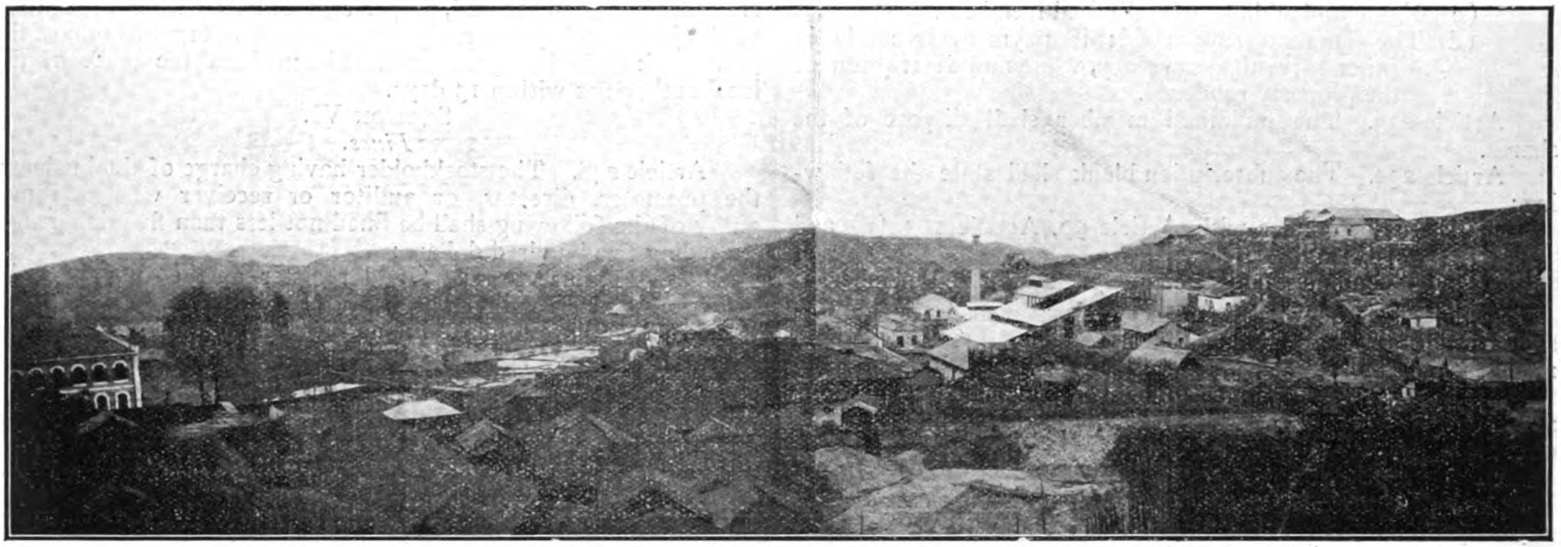
(a) Failure to report and register at the office of the local authorities as required by law.
(b) Failure to make the notification and public announcement within the time limit as required by law or when such notifications and announcements are falsely made.
(c) Failure to submit documents for inspection without a good reason, when such inspection is allowed by law.
(d) Hinder or in any way handicap the process of inspection provided by the law.
(e) Start preparations for the commencement of business without fulfilling the requirements of Article 5.
(f) The failure to make proper subscription blanks as provided for in Article 105 (a) and Article 234.
(g) When Article 128 (a) and Article 208 (b) are not strictly adhered to in issuing stocks.
(h) Failure to make proper records on the corporation bond certificates as prescribed in Articles 129, 196 and 209.
(i) Failure to close the accounts at the fixed intervals or at the winding up of the corporation
(j) Failure to deposit the following documents at the head and branch offices as required by law, viz;—the bye-laws of the corporation, the minutes of the stockholders' meeting, the stock-ledger, the corporation loan accounts, the inventory, the balance sheet, the business report, the profit and loss account, and the resolution relating to the distribution of dividends and laying up of a reserve. The improper recording of such documents shall be similarly fined.
(k) Failure to call the stockholders' meeting as provided for in Article 16 (a) and article 189.

Article 249. A fine not less than ten dollars and not exceeding one thousand dollars shall be imposed for the following violations on the part of the promoter, director, auditor, receiver or any stockholder having charge of the business:

(a) Unfaithful statements made to the local authority or before the stockholders' meeting.
(b) Any reorganisation, reduction of capital, combination or disposal of the corporation in any way inconsistent with the stipulations under Articles 53, 54 and 55.
(c) Hinder or handicap the inspector carrying out his duty.
(d) The purchase or acceptance as security of shares of the corporation violating Article 132 or the cancellation of shares violating Article 133.
(e) Issuing non-registered share certificates violating Article 139.
(f) Failure to announce bankruptcy in accordance with Article 72 (b) and Article 161 (b).
(g) Failure to lay aside a reserve as provided for in Article 183; failure to declare dividend in accordance with Article 184; failure to conform to Article 186 in paying dividend before the commencement of business.
(h) Failure to conform to Article 191 in issuing corporation bonds.
(i) Failure to conform to Article 71 in making refund to corporation's creditors.
(j) Failure to conform to Article 73 in allotting the corporation property.

Article 250. The common laws governing business operations and business men shall be separately enacted.

Article 251. The time to carry out the above listed laws shall be fixed by extra detailed regulations.



SHUIKUOSHAN LEAD AND ZINC MINE WITH MODERN METALLURGICAL PLANT IN COURSE OF CONSTRUCTION

METALLIFEROUS MINES OF HUNAN PROVINCE

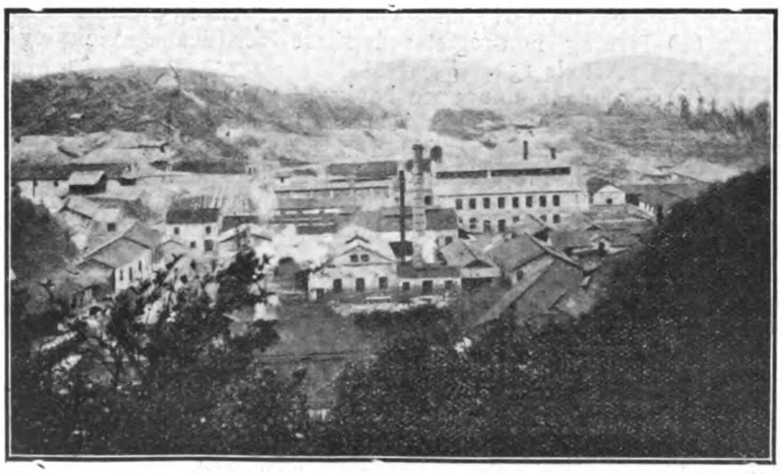
[BY A. S. WHELER, M.I.M.M.]

Hunan province is generously endowed with a variety of mineral deposits, but before proceeding to a description of these a few remarks on Chinese mining methods will perhaps not be amiss. With the exception of the Shui-ko-shan property, the mines are practically all worked in the primitive Chinese fashion which has been practised without material alteration for centuries past. A Chinese mine may be best described as a ragged hole in the ground off which numerous irregular shaped excavations have been made following the ore and working it out wherever found in sufficient quantity.

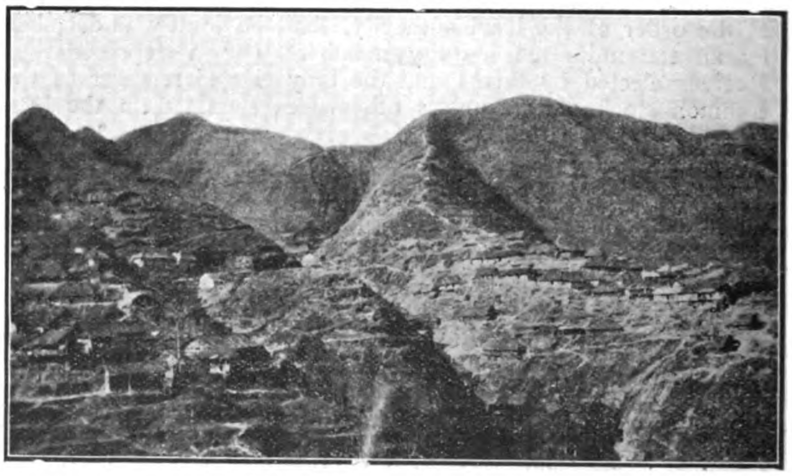
The result is a sort of bewildering rabbit warren of workings, usually none too safe, up and down which one clambers on ladders and timbers affording a slippery and precarious footing or grasp. Development work is rarely or never undertaken, so that a reserve of ore is never created, which would serve to tide over a "rainy day;" hence when a poor zone is encountered the mine probably has to be closed down for lack of funds. Practically all work is done on contract, whether mining, hoisting, pumping; or ore treatment. The method of working and the control and direction of the operations is left entirely to the workmen; it is an extremely rare occurrence to find a manager of a mine who will venture underground or who has the necessary knowledge or experience to enable him to assume technical control. The mining is let to one or more underground contractors and paid for at per picul of picked ore; they engage the miners, providing them with the necessary tools and explosives. For the latter purpose native-made black powder is invariably used, the fuse being of straw and touch paper with powder filling. For light, flare lamps are employed; these consist of a shallow iron saucer suspended at the end of an iron rod and filled with vegetable oil in which are immersed wicks made of wood pith. As ventilation is allowed to take care of itself, the underground atmosphere resulting from the fumes of the explosive, and the smoke of the lamps, can be better imagined than described.

The pumps used are quite ingenious. They are made of bamboos 5 inches in diameter from which the inside rings have been cut out, thus forming the pump barrel. The rod is a long strip of bamboo to the end of which is fixed a disc of hide of the same diameter as the bore of the bamboo. This acts as a flap valve and is seated or supported on a smaller disc of wood. A cross piece fixed to the other end of the strip serves as a handle. The pump coolie actuates the plunger, and the discharge end of the bamboo delivers the water into a small cistern or sump on which he sits. The suction of a similar pump above him draws from this cistern and raises the water to the one next above, and so on. The method is crude but it answers admirably for comparatively shallow workings, as labour is cheap and the capital outlay is a minimum.

The broken ore is usually roughly picked over underground to eliminate waste rock and is carried or dragged out of the mine in basket loads of sixty catties weight or more. In the narrow tortuous workings of the average Chinese mine this work is extremely arduous. The ore is then cobbed (i.e. pieces of waste rock detached by hammering) and sorted before being subjected



SHUIKUOSHAN MINE, POWER PLANT AND WORKSHOPS



LIULINCHA GOLD MINES

to treatment for its valuable content. In the following pages the metalliferous deposits are considered in the order of their economic importance and a brief description is given of the larger mines.

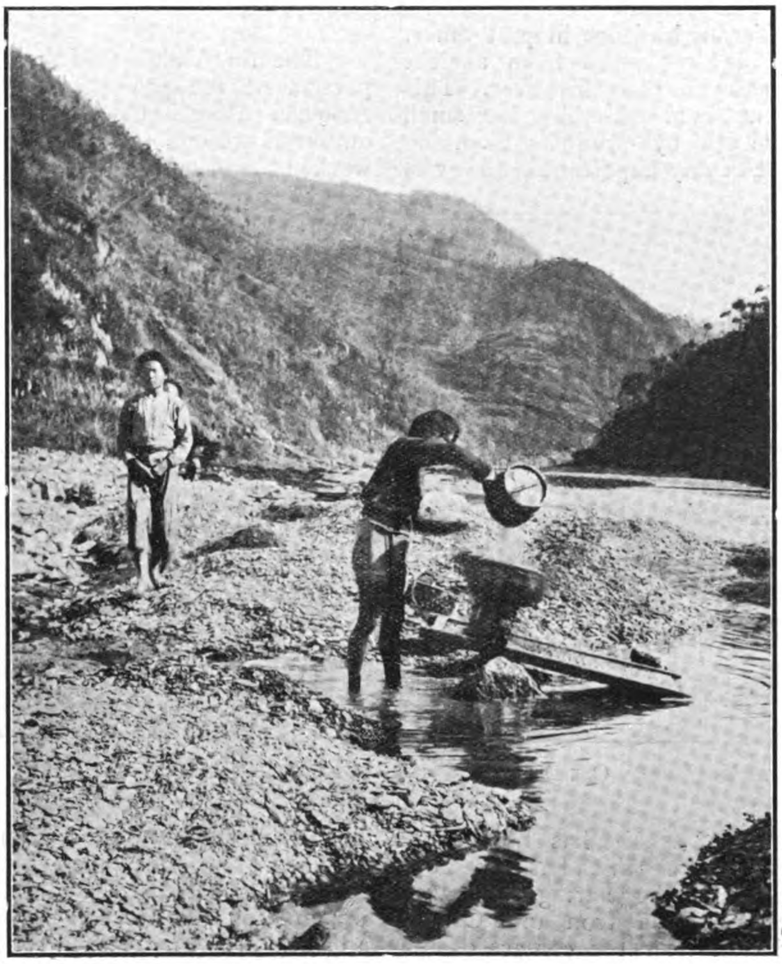
Antimony

This is by far the most important mineral product of the province; in fact China is the world's chief producer of antimony and the bulk of the output comes from Hunan. It is marketed in various forms. Antimony regulus is the metal and the production of it is the monopoly of the Hua Chang Company, granted under the Manchu regime and recently extended by Presidential Mandate. The Hua Chang Company owns the French patent rights for China of the Herrenschmidt furnace, which is especially adapted for the treatment of low grade sulphide ore. The process consists briefly in mixing the broken ore with charcoal and heating with regulated admission of air. The sulphide is thereby converted into oxide, which is volatile and is drawn off and condensed in special chambers. The oxide is then mixed with suitable fluxes and smelted in the ordinary reverberatory furnace. The molten metal is ladled into moulds and allowed to cool slowly and undisturbed beneath a covering of slag. This produces the fern-like markings on the surface of the ingot which is held to be a sign of freedom from impurities, but as a matter of fact is not necessarily so. Chinese regulus, however, compares favourably with any on the market and runs over 99.5 per cent. of metal.

Antimony crude is the most usual form in which antimony is marketed in China. This consists of concentrated antimony sulphide, which is obtained by the process known as liquation. The ore, in small lumps or dust, is heated in a clay crucible or pot. The sulphide being easily fusible melts, and percolates through a hole into a lower pot, whence it is ladled into moulds. Crude contains roughly 70% of antimony metal. Another form is ash, which is the residue from liquation. This may run as high as 30% or more of antimony. It was formerly regarded as waste but is now being roasted and smelted locally for the production of regulus. Antimony ore is shipped to Europe for treatment, and works have also been recently established at Hankow for the production of crude and regulus. It must be mentioned that Hunan ores are remarkably free from deleterious impurities such as Lead, Copper, Arsenic, zinc, etc. The export figures from Changsha for 1914 are

Regulus	3,955	tons
Crude	13,792	,,
Ore	8,859	,,
Ash	2,150	,,

Owing to the largely increased demand for the metal, which is used in the manufacture of munitions of war, and to the fact that other producing centres such as Mexico and France are not in a position to maintain their outputs, prices have soared to the highest level yet reached. London price in July, 1914, was £27 per ton, in December £55, and in June of this year was over £150.



Honan Province—Washing River Sand for Gold

Antimony ore is known to occur at numerous points, but the principal mines are located in central Hunan. By far the most important field is Hsi-keng-shan, which lies about 60 li (21½ miles) east of Sinhua, on the Tzu River. The prevailing geological formation here is dolomitic limestone. An abrupt scarp marks the line of reef which is rather over a mile in length and is honeycombed with the workings of seventy companies or owners. The ore is Stibnite, or antimony sulphide partially oxidised in the outcrop zone, and it occurs in the form of seams, pockets and masses generously distributed throughout a layer of limestone varying in thickness up to forty feet.

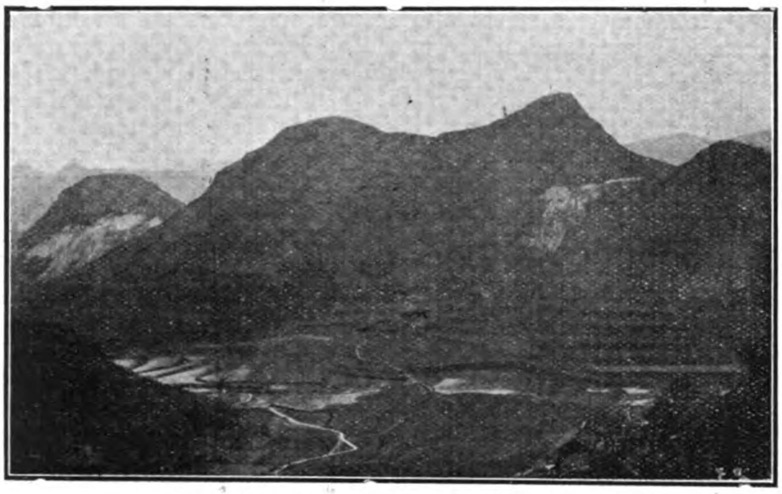
The ore is rough sorted underground and then carried to the surface where it is cobbed, to remove adhering waste, and close sorted. The picked ore runs as high as 65% antimony, and the lower grades about 40%. The fine ore and dust is concentrated by native hand jigging in baskets. Owing to the high prices now ruling all the old waste heaps are being carefully sorted over and the ore graded up by cobbing followed by crushing and jigging. There are seven local smelting works in which the bulk of the ore is converted into crude. The oxide ore was being smelted to regulus in reverberatory furnaces, but this is believed to have been stopped by the monopoly holders. The field puts out 1,000 tons or more of crude per month, and it is estimated that fully 10,000 persons are directly employed therein.

The Panhsi mines are situated about 70 li (25 miles) South of Chan-hsi, a small town on the Tzu River about 100 li (36 miles) above Yi-yang. The surrounding country is mountainous and is composed of sedimentary strata tilted and bent by granitic intrusion but not much altered. Four mines are being worked here. The ore bodies are of the fissure vein type, the ore occurring in shoots. These have been worked down to depths varying from 150 ft. to 500 ft. measured on the dip which ranges from 70° to vertical. The vein filling is quartz or interlaminated schist and quartz, and the stibnite usually occurs as a narrow seam hugging the footwall. The average width of the veins probably does not exceed fifteen inches, though very occasionally they swell out to five feet.

There is no dressing or smelting plant; the ore is cobbed and sorted to about 30% grade and about 400 tons is shipped monthly to the Hua Chang works at Changsha. From the mine it is carried 6 li and then rafted down a small stream on bamboo rafts each carrying about half a ton to a point on the Tzu River where it is transhipped into junks carrying 8 or 10 tons each. This ore supplies the Herrenschmidt furnaces and it is converted into regulus as previously described. Other mines of less importance are Wu-hsi in Shenchowfu, Hua-pan-hsi in Anhua-hsien, and Chiang-hsi-lung in Chüpu-hsien. These are geologically similar to the Panhsi mines, the ore being however of higher grade. The output from these is less than one hundred tons per month; and there are numerous other smaller producers in various parts of the province.

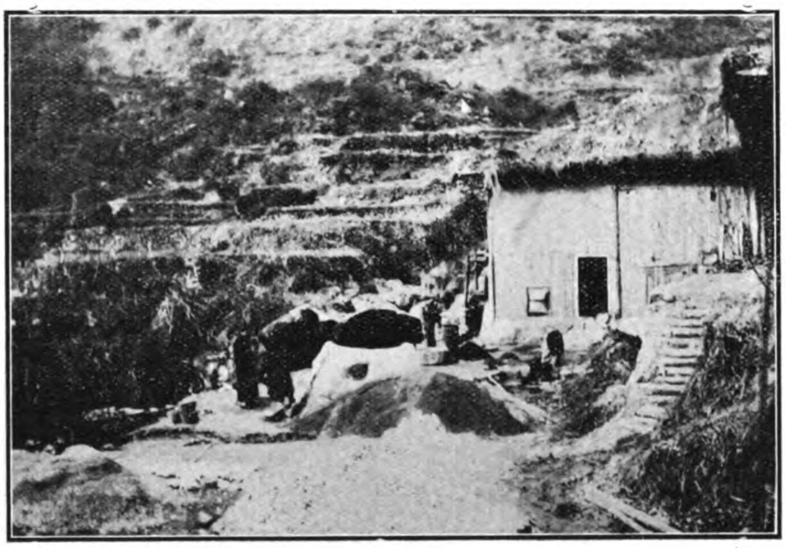
Lead and Zinc

The vast slag heaps found at Kwei-yang-chow and to the south-east of Chenchow testify to the existence of a considerable



PATUNGLA QUICKSILVER MINES

industry in the smelting of argentiferous lead ore in past times, and pieces of galena (lead sulphide) recovered from ancient workings in this locality have assayed high in silver. This industry is practically extinct, but there are still a few small mines producing lead and zinc ore and bye-products from the associated minerals. The only one of any importance, however, is the Shui-ko-shan, controlled by the Hunan Official Mining Board. This property, as already mentioned, is run on foreign lines, and is probably the largest of its kind in China. It is well situated as regards transport and accessibility, and can be approached either overland from Hengchow, from which town it lies 90 li (32 miles) distant in a southerly direction, or up the Siang River to Sungpo, the loading station, just above the confluence of the Kwei and the Siang. From Sungpo a light railway 10 li in length connects with the property.



ORE DRESSING FLOOR AT YUTUNG TIN MINES

An examination of the geological structure shows that the ore carrier is limestone covered to the north and west by slightly unconformable red sandstone and shale. An intrusion of syenite has tilted these into the form of an anticline, the crest of which has since been denuded. The ore deposit consists of large irregular shaped bodies of mixed Galena, Zincblende, and Iron and Copper pyrites, which have been formed at or near the contact of the syenite and the limestone, as a result of this intrusion. Official records, covering the past twenty years, show that the mine has produced during this period over 50,000 tons of Lead concentrate and over 126,000 tons of Zinc concentrate but there were extensive native workings prior to 1896, probably dating back for centuries. A portion of the mine is still worked in native fashion, but the main workings consist of an incline shaft sunk to a depth of over 600 ft. off which four levels have been driven, and of a small vertical shaft 160 ft. deep below this point serving the fifth and sixth levels. The ore is rough sorted underground and then cobbed and close sorted at surface. This yields clean high grade lead and zinc ore, ready for shipment. The balance is a mixed product of varying size. The lumps are partly stacked as a reserve at surface and the remainder together with the coarse goes to the foreign plant for treatment. The dust and small pieces are sent to the Chinese dressing floors.

In the foreign plant, the ore is first crushed and sized and then fed to mechanical jigs and wilfley tables which produce a lead concentrate and a zinc concentrate and intermediate products; the latter are at present being stored for future treatment. The Chinese process consists of repeated hand jigging in baskets, which yields lead and zinc concentrates and a mixture. The latter is treated by washing down an inclined plane several times whereby lead concentrate is separated out, the balance going to waste. The capacity of the foreign plant is about 50 tons per day and of the Chinese plant rather less. A new foreign plant with a capacity of 100 tons per day is in course of erection. During 1914, a total of nearly 56,000 tons of ore was treated yielding 5,000 tons of Lead concentrate and 14,600 tons of Zinc concentrate. These respective products are stated to average 70% of Lead with about 8% Zinc and 30 to 40 ozs. Silver per ton and over 30% of Zinc with 5% to 10% lead impurity. The cost of producing a ton of concentrate is about $13, local currency, excluding depreciation, amortization, etc. The concentrates are sold under contract to Messrs. Carlowitz & Co., of Hankow, who retreat them in their works at Wu-chang, whence they are shipped to Europe to be smelted. An experimental lead and zinc smelting plant using native methods has been established by the Hunan Board near Sungpo, where both these metals and also silver are being produced.

Tin

The tin fields of Hunan are situated in the most southerly portion of the province close to the Kwantung border. The An-yuan Mines in the Ichang hsien (or district) show the largest output at present. A deposit of quite exceptional nature is being worked here, and is of a type which, so far as the writer is aware, is known at only three or four places in the world. The formation is limestone tilted and marmorised by a granite mass. A dyke of granite, probably of more recent date than the main mass, has penetrated the limestone and along the course of this are found true chimneys or pipes of tin ore, associated with arsenical pyrites, actinolite, and a little copper pyrites and fluorspar. The pipes are roughly circular or oblong in cross section, varying from 20 ft. downwards in diameter. The maximum depth reached is about 400 feet and the dip of the pipes ranges from horizontal to vertical.

The mineral contents are arranged in concentric rings or layers, usually sharply defined, and slightly oxidised on the outer edge, the interior being sulphide ore. One pipe is a marked exception to this for it is oxidised to a soft red earth and clay to a depth of 300 ft. The dressing of the ore consists of cobbing and sorting, the clean arsenical ore being stacked for separate treatment. The balance

LINWU TIN MINES

is then roasted, the arsenious oxide ("arsenical soot" of commerce) being collected by condensation in domeshaped chambers built of rough stone and plastered with clay inside. This soot is placed in thin iron basins over a fire, covered with a similar basin inverted, and subjected to a prolonged second heating, when the arsenious oxide is deposited as a "glass" on the upper basin. It is sold in this form for agricultural purposes. The roasted ore is then crushed by water-driven Chinese stamps, after which it undergoes a series of concentrations.

The first of these is effected by raking the ore over from side to side in a shallow stone-paved pit into which water is flowing. The "heads" from this operation are further concentrated by repeated washings down a concave shaped incline. The concentrates are then mixed with loam and reroasted to drive off the associated arsenic; after which they undergo a second crushing and concentration as above described. The smelting is conducted in a cylindrical furnace built of brick or stone bound with clay. Blast is supplied by a double acting Chinese bellows through a two-inch opening pointing downwards from the back of the furnace. The furnace door is stopped with clay and a layer of live charcoal is placed on the furnace bottom and blown up to a good heat. About 50 catties of concentrate mixed to a thick paste with "incense wood" pulp is then charged in and covered with a layer of charcoal. The smelt lasts for 24 hours, charge and fuel being added half hourly, and the blast continued throughout. Shortly after starting an iron rod is inserted in the furnace door and through this taphole the molten tin trickles out slowly into a clay lined depression where it is kept covered with live charcoal. When sufficient has collected, it is ladled into sand moulds forming ingots of about 45 catties weight each. The metal thus obtained runs over 99% Tin.

The Hsiang-hua-ling Tin Mines are situated in the Linwu-hsien about 50 li North of Linwu, in wild, mountainous country. Five companies are at work here, of which the Hunan Official Mining Board is the most important. The geological structure shows that the mineralization is due to a granitic intrusion between quartzite and a conformably overlying highly fossiliferous limestone. This has produced a displacement and fissuring of the latter, with however but little alteration. The fissures are numerous but apparently of short lateral extent, though well defined. An intersection is usually marked by a good patch of ore. The associated minerals are Arsenic Iron and Copper pyrites; with occasional bunches of fluor spar in big cubic crystals. The processes of ore dressing and smelting are precisely the same as at the Anyuan Mines. A local custom, prevalent in both fields, is to reckon a picul of ore as 180 catties, a picul of concentrate as 115 catties and a picul of smelted tin as the usual 100 catties. No explanation was forthcoming for these standards beyond the fact that it was the custom.

At Kianghwa, to the west of Linwu, there is an extensive tin field extending southwards into Kwangsi and Kwantung provinces, which has by no means yet been thoroughly investigated. Native operations have been more or less confined to the alluvial deposit which is found on the tops and sides of the hills, being retained in depressions in the eroded and rugged surface of the limestone formation. The tin occurs in association with tourmaline, iron and arsenic, and when dressed contains from 50% to 70% metal. The output from the entire field is considerably in excess of either of the two previously mentioned and would be greater but for the fact that the workers suffer much interruption and discouragement by brigandage. There are a few small tin mines situated in the mountainous country to the west of the Kuei River which produce a few tons of metal annually, but they are of small importance.

Arsenic

The bulk of the arsenic production of the province is derived as a bye-product from the treatment of tin ore carrying arsenical pyrites as previously explained. Realgar (arsenic bisulphide) is found near Tzeli in Northern Hunan, the deposit being reported to be of considerable size and high grade; the mines are closed down at present.

Quicksilver

This occurs to the west of Feng-huang-ting in western Hunan adjoining the Kweichow border, and forms the eastern end of a belt extending well into Kweichow province. The mines are reported to have been worked intermittently for several centuries and certainly the extent of the underground workings and the size of the waste dumps lend truth to this statement. The two mines at present operating are Hon-tze-ping, situated 60 li west of Fengchuang, and Tatung-la, situated 80 li to the south-west of that town. The enclosing rock or ore carrier at both places is dolomite (magnesian limestone), gently undulating, and free from igneous intrusions. The ore is Cinnabar (mercuric sulphide). At the Hon-tze-ping Mine the deposit is confined to a layer of dolomite ranging up to six feet in thickness, through which the Cinnabar, associated with carbonaceous matter, occurs disseminated in small patches or bunches or as an incrustation on bedding planes. At the Ta-tung-la Mine extensive ancient workings are observable in the surrounding hills. Several owners are at work here of which the Li-hêng Co. is the most important.

The ore is found disseminated through a thickness of about 100 feet of horizontal dolomitic strata in small crystals or blebs frequently associated with long radiating crystals of Stibnite (Antimony Sulphide); occasional rich pockets of ore occur but the deposit is of lower average grade than Hon-tze-ping. At both mines the richer picked ore is crushed by hand and panned down for the Cinnabar content. This is sold direct according to grade, which is estimated by the eye, to buyers from Tungjen in Kweichow. The market price at the beginning of the year varied from 110 to 170 strings per picul and it may be remarked in passing that all payments are made in copper coin. The poorer ore and tailings from panning are retorted for their Quicksilver content. The retort used consists of a thin iron basin 30 inches in diameter supported on stone work at a height of about eight inches above the ground-level. Two other basins, from which the bottoms have been burnt out leaving only deep rims, are fitted in reversed position into each other and placed on the lower basin. The uppermost is then covered with a th'n iron plate leaving a circular opening of about twelve inches, and on this is placed an earthenware pot upside down.

The ore previously crushed is charged into the lowest basin, and all joints are luted with clay. A semicircular channel of clay is moulded around the inner periphery of the top basin, and communicates with the interior of the retort by means of three holes. A wood fire is lit and heats the ore. The Cinnabar dissociates into Mercury and Sulphur dioxide; the fumes of the former rise up and partly condense on the interior of the earthenware pot and partly pass via the communication holes into the semicircular channel. The latter is thus a collecting ring, the contents of which go to the company as their share to defray cost of furnace, basins, pots, etc. The amount so collected is stated to vary from 12½ to 15% of the total distillate, but this is rarely or never checked by actual weighings or tests.

No doubt much fraud is practised on the miners although they will not permit the ring and holes to exceed certain dimensions which, however, vary widely at the two mines. It is certain that such factors as grade of ore and heat applied would materially affect the percentage passing into and condensing in the collecting rings. The condensing pot is removed by hand when too hot (which is ascertained by spitting on it as clothes ironers try the heat of an iron!) and a fresh pot substituted. Despite the total lack of precautions in conducting the retorting operations and the lackages of the retorts, very few cases of salivation were noticed. It was stated that furnace men are fully alive to the dangers attendant on such work and do not keep at it for more than three or four years.

Gold

Evidences of gold washing of river sands are plentiful but the operations do not appear to have been conducted with much profit as only at two points was work seen in actual progress. There are a few mines working and it is doubtful if these are remunerative. The chief of these is near Pingkiang in North-east Hunan close to the Kiangsi border, and about 350 li north-east of Changsha, the capital of the province. This concern is

controlled by the Hunan Official Mining Board, and consists of a number of mines scattered over a mountainous district. The formation consists of a gray slatey schist, carrying veins of quartz. There are numerous small workings dotted about the hillsides, most of which have been abandoned as either profitless or on account of the inability to cope with the water. In most cases the adits or tunnels located on the creek banks were driven down hill, with the result that the working was of course flooded almost immediately.

The Company is at present producing ore from six different mines, located at distances varying from one to eight li from the dressing floor. The average width of the veins varies in the different mines from three inches up to two feet; the wider being generally composed of mixed schist and quartz. A small percentage of iron pyrites and galena is present. The principal mine, called the Kin T'ang, is working two veins intersecting each other at an acute angle and dipping in the same direction. The veins consist of mixed schist and quartz and vary in width up to four feet, but the stope widths are generally two feet or more in excess of this. This mine has been worked to a depth of about 650 ft. measured on the dip of 35° to 40°. The gold occurs in shoots and patches which decrease in depth. The mining is not run on contract; the miners are paid 214 cash per 8 hour shift and all tools and explosives are found by the Company. The pump men and ore carriers are paid 164 cash per shift.

The treatment process consists of the usual cobbing and sorting to eliminate the waste rock. The sorted ore is then crushed in a man-power stamp mill. This is built on similar lines to the old well-known rice mill, except that the face of the stamp, corresponding to the shoe of the modern gravitation mill, is shod with iron and strikes on a cube of iron, which corresponds to the die. The crushed ore is washed over two sets of riffle tables, each table consisting of three boards, stepped, and of a total length of ten feet. The ore is fed on by sprinkling on the head board. The tailings are passed over the tables as often as deemed necessary before going to waste; the concentrates are panned by hand and the free gold thus obtained smelted into ingots of about twelve ounces weight. The balance is fine-ground in small troughs in which an iron disk is rotated backwards and forwards by coolies rolling the axle on the soles of their feet. A similar appliance is used by Chinese chemists for grinding the ingredients of their medicines. After several concentrations by panning and regrinding the sulphurets are roasted in a small reverberatory furnace and again fine ground and sent over the riffle tables.

The Kin T'ang Mine has its own dressing floors, the concentrates only being sent over to the central mill for final treatment. The official returns for the closing months of 1914 show that grade of the sorted ore was about .75 oz. gold per ton and that the output averaged about 120 ozs. gold per month of a fineness of about 920 parts per 1,000.

Other gold mines exist at Suo-sha-po, Lin-lin-cha, and Hui-tung. The first named is situated 40 li north of the village of Ta-fu-hsi on the Yuan River, in the Tao-yuan hsien. The deposit here consists of an interbedded quartz reef in sedimentary strata composed of quartzites and shales, much hardened and contorted in places. The method of working is by drifts and openstopes although adits suitably located would give several hundred feet of backs. The reef widths vary up to maximum of about two feet six inches; visible gold is occasionally found but it is mostly bound up with iron pyrites, galena, and copper pyrites. Seven pennyweight ore is considered to be good grade. The crushing appliance used here is a stone roller mill driven by water power. The riffle board is employed as a concentrator and the concentrates are fine ground by hand between stones; the tailings are retreated several times before going to waste. Until recently this field was illegally worked and the output at present is very low.

The Liu-lin-cha Mines lie some twenty li distant from the village of that name in the Shenchowfu. Two companies are at work here on an auriferous body which is apparently akin to a "stockwork" (or accumulation of small veins and stringers) resulting from the infilling of fractures produced by a strong fissure. Neither company treats its own ore but sells it at the pit's mouth to the highest bidder. It is treated in privately owned mills of which there are fully fifty in the valley. The method of treatment is the same as at Suo-sha-po. The average grade probably does not exceed half an ounce of gold per ton, and the total production for the population of 3,000 to 4,000 is well below 100 ozs. per month. It will be realized that the valley does not present a prosperous appearance. The Huitung Mines in the Huitung-hsien, in the southwestern quarter of the province, were reported to have been closed down recently. The occurrence here is stated to be similar to that at Ping-kiang.

Sundry Mineral Products

Other mineral products of Hunan province include Sulphur, Manganese, Graphite and Alum. Deposits of Copper ore of high grade are reported to exist but are not worked. The production of Sulphur is not inconsiderable. It is obtained by the destructive distillation of Iron pyrites. The lump ore is charged into long cylindrical clay crucibles, covered with moist clay, and supported in an inverted position over shallow pots standing in running water. The crucibles, eighty or more to a furnace, are then packed round with coal cake which is allowed to burn for twenty-four hours. The clay covering dries and cracks, permitting the escape of molten Sulphur, which trickles down into the pots kept cool by the water. Manganese is mined by the Hanyang Iron Works Co. for smelting with their iron ore.

HUNAN INDUSTRIES

The Tung Ting Tannery, in the province of Hunan, which has been out of working order as a result of the military occupation during the first revolution in 1911, has been restored.

The buildings of the Government Cotton Mill in Hunan are still under construction, but as the Governor of Hunan deems it of great importance that the mill should be completed as soon as possible in order that unemployed people may receive work and the general peace of his territory may be maintained, orders have been despatched to the Financial Commissioner of the province and the Superintendent of the Bank of Hunan, who are acting as the Inspector-General and the Managing-Director of the said mill, respectively, to the effect that the construction of the mill should be pushed forward so that it may be completed and the work commenced before the advent of winter.

The paper manufacturing industry is one of the important items in the programme of the native-goods propaganda and now it receives great attention from Defence Commissioner Yen of Hunan, who is acting concurrently as the Civil Governor of the province. The material for the manufacture of paper in the province is found to be cheap and abundant. In the opinion of the governor, Hunan is a better place for the manufacture of paper than any other province so far as material and labour are concerned. Originally there was a paper manufacturing mill in the province established by merchants under the name of Feng Wha paper mill, but it has been closed on account of the lack of adequate capital. To encourage this industry, the Governor has given instructions to the chief of the Industrial Department in his yamen to approach the principal shareholder of the mill, named Mr. Yang Tsan-hsu, for the discussion of the means of raising sufficient funds for the renewal of the Feng Wha Mill.

The Yo Li Shan Glass factory in Hunan has been lately enjoying prosperity under the superintendance of the Manager Shao. More than Tls. 10,000 has been turned over of late to the Government in repayment of the loan. Nowadays glass is a requisite in the construction of any Chinese house, and as a result its demand has been growing very rapidly. So long as the present war in Europe continues, however, the import of glass from foreign countries remains impossible. At the present rate of production of glass in China, it is far from sufficient to meet the demands for native consumption. In view of this fact, Manager Shao is calling a meeting of the shareholders to devise means for the immediate enlargement of the present plant.

WHAT THE PHILIPPINE COCOANUT GROWERS NEED

The Case for and Against Central Drying Plants for Copra Industry

Now that the Philippine Government, after years of labour, has sufficiently organized the Sugar growers of Negros so that a central can be constructed with reasonable assurance of success, the idea of having the Government do work that should be done by the planters themselves has spread to the cocoanut growers as well, and frequent references to the need of a copra drying plant are now made in the Manila Press.

The idea of improving the quality of Philippine copra was taken up with avidity by Vice-Governor General Martin when he first came to the Philippines, although it did not originate with him. As an examination of the files of the Manila Merchant's Association will disclose, the subject had been under investigation by its Secretary for a period of four years before the arrival of the Vice-Governor.

The special Copra Committee which was appointed by Mr. Martin, is composed of Acting Director Hernandez, of the Bureau of Agriculture, chairman; Dr. Bernard Herstein, Insular Collector of Custom; Mr. Traves; and Mr. Gervasio Unson, of Tayabas.

At a meeting of this committee held on August 4, it was decided that the Government should come to the aid of planters of cocoanuts as it had to the sugar planters. The plan favored by the committee is that the Government should establish centrals under identically the same conditions as those now governing the activities of the Central Sugar Board. It was held, according to a newspaper account, that the establishment of such centrals would prove of great value in that it would be possible to install the best drying machinery obtainable and in large measure to standardize the local copra product, which is now known to be considerably inferior to that produced in other countries, particularly in Ceylon. The question of machinery, however, was held open for consideration at a later meeting, it being the desire of the committee to await the arrival of certain copra drying machinery which the Government has already ordered from New York for demonstration purposes.

As the experience of most of the members of this committee is limited to the Philippine Islands, their views and recommendations on such a subject may be assumed to carry very little weight. As for Dr. Herstein, his concurrence in the report of the committee, which we understand was unanimous, would seem to indicate that he had not gone as exhaustively into the subject as one would expect him to do from his reputation as a scientist.

Tayabas "Tapahan" Copra

In order to deal intelligently with the subject of Philippine copra improvement, it might be well to set forth the present status of the industry so far as it concerns Tayabas Province, where the agitation for the central seems to have originated, since Mr. Unson, a member of the committee, is from that province. Philippine copra consists of three different grades, "Sundried," "Fair," "Merchantable," known to the trade as "F.M." and "Laguna." Tayabas copra falls under the latter two headings as its copra generally is slightly better than Laguna, although for the most part it is not sundried but a product of the rude drying kiln or "Tapahan." It is to improve this product of the Tapahan that the Government is expected by the Tayabas growers to install expensive machinery and add one more to its already long list of paternalistic, perhaps mistaken, endeavors. One might almost call it a crime, for intervention in this matter of copra drying is so utterly unnecessary as to fall outside the category of mistakes and into that of pernicious activities.

In making copra the method followed in Tayabas as well as Laguna, and the other provinces where the climate is not favorable to sundrying, is to pick the nuts in a more or less unripe stage, remove the tough fibrous husk by stabbing the nut on the point of a spear fixed firmly in the ground, after which the cocoanut is split in two and placed upon a bamboo grill some four or five feet above the ground. The source of heat for the drying is from the fibrous husks which, being imperfectly dry, emit considerably more smoke than heat, the result being such that the copra should rather be called preserved or smoked than dried, since the produce is quite liberally creosoted in the drying process. Not only is the appearance of the product against its bringing a high price in the markets, but its lower oil content makes it decidedly inferior to the sundried.

While this lack of oil, which is taken into account by discriminating buyers, comes in part from the inferiority of the cocoanut itself and is due to the lack of seed selection, the oil content might be materially raised if the Filipinos would let the nuts ripen on the tree before picking, instead of gathering, as now, immature cocoanuts which make a thin copra of inferior oil producing qualities.

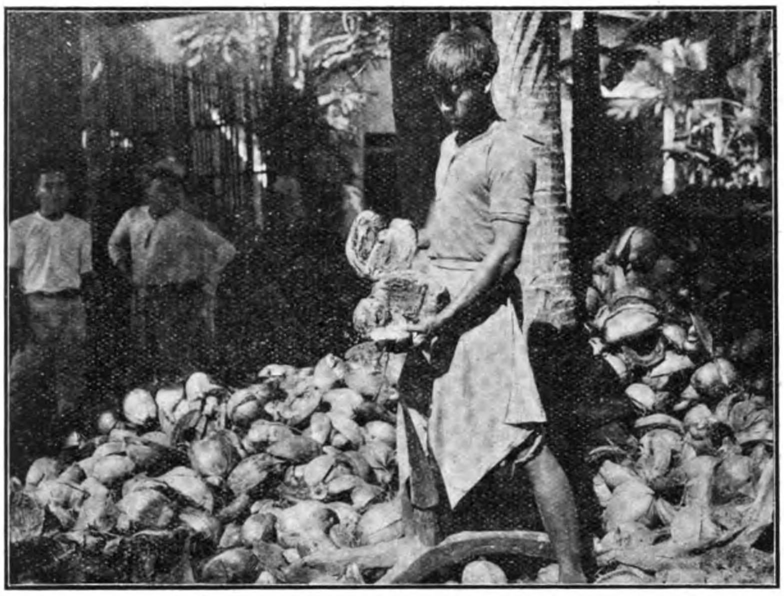
Should Regulate Raw Material

If the Philippine Government is paternalistic enough to invest its money in centrals for the improvement of Philippine products, it might go a step further in the case of copra, and tackle the evil at its root by passing laws forbidding the cocoanut growers from picking any but ripe cocoanuts and by establishing inspection centres through which copra would have to pass before being exported. At such centres any improperly made or poor quality copra could be thrown out and returned to the grower for whatever use he might see fit to put it, thus raising the quality of the crop and removing the unenviable reputation Philippine copra now holds.

Recent comments in the public press of Manila regarding the high quality of Samoan copra, and the higher price obtained by the growers there, show the necessity for such a law as the one detailed above. Some ten years ago Samoan copra was a drug on the market, and the most casual examination of prices in the great copra market in the world shows that it brought even less than Philippine copra, which latter now seems firmly entrenched at the bottom of the list. A law then was passed in German Samoa that forbade the grower from picking any nuts whatever for the manufacture of copra. Nuts that were picked must be eaten on the spot and no cocoanut that did not fall of its own accord from the tree was permitted to be made into copra. Not only was undergrade copra confiscated but the grower that attempted its sale was fined. In five years' operation of this law the quality of Samoan copra has been raised materially and the native by being protected against himself has been enabled to reap much greater profits than would have been the case under his former mistaken policy.

An examination of the detailed receipts of copra coming into the Manila market through Laguna and Tayabas will show that the moment the price goes high, the quality instantly decreases, owing to the grower endeavoring to seize the top of the market in as large a volume as he can, and to this end he picks every cocoanut that could by the most liberal construction be deemed ready to produce copra. A law such as that in force in Samoa is the first great need of the Filipino cocoanut planters.

As to the manufacture of copra, the installation of the central for a rapid drying of the nuts will have absolutely no effect unless the nuts, in the first place, be allowed to reach maturity and come to the full oil content before being picked. Even if this were done, there are many other problems to be solved before a central could be brought to economic operation in the drying of copra. Too much stress has always been placed on the appearance of copra and while the black creosoted product



FILIPINO STRIPPING HUSKS FROM COCOANUTS

TAPAHAN OR COPRA DRYING KILN

of the present Philippine tapahan may militate against its price, the copra buyer in the world's great markets of Marseilles, Hull and Hamburg buys almost entirely on oil content and low acidity, both these factors being taken into account.

The question at once arises as to whether the rapid drying of copra, as is proposed by the advisers of the central, will be an advantage or not, and in this connection the files of the Manila Merchant's Association contain evidence of Ceylon growers, which is entirely on the negative side of the proposition. One Ceylon grower, as a writer remembers his testimony, stated as follows:—

Looks Good but Lacks Oil

"With my drying plant, having brick flues and proper means for inducing a current of hot air to pass over the copra, I turned out perfect paper white copra in five hours, but soon began to receive complaints from my customers, the native oil millers, that they could not use my copra to advantage because of its low oil content. On chemical examination it was found that they were right; the rapid drying had driven off a much larger proportion of the oil than I had considered possible. The best copra I have seen is that produced by a grower who requires five days for the drying process, which he carries on entirely by the native method of grill-drying."

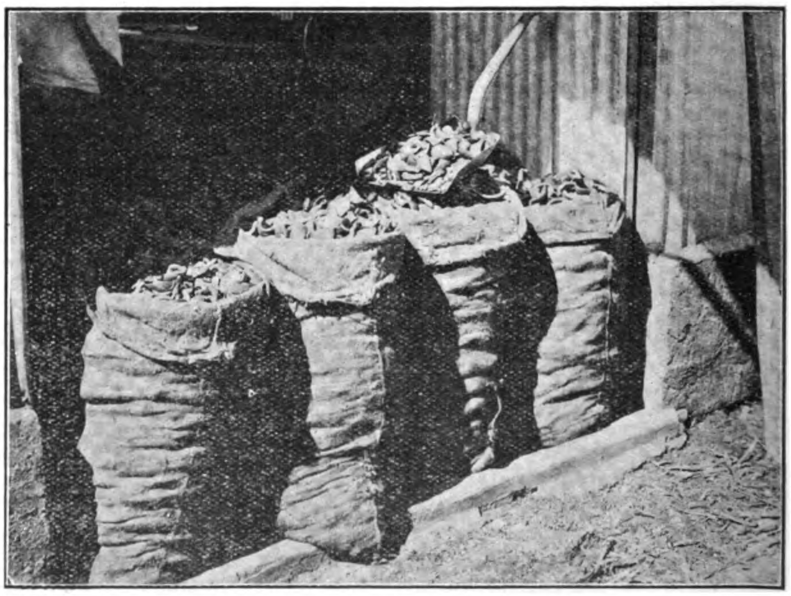
In view of the above testimony which will be found in the files of the Merchant's Association, embodied in a letter from the then Consul-General at Colombo, a central would appear a useless experiment at best if the Ceylon native can get better copra by grill-drying than the European operator by an expensive installation. Why then should not the Filipino take a leaf from the book of the Ceylon native and revise his grill-drying method rather than ask the Government to waste its money in putting up a central drying plant?

Shells versus Husks as Fuel

The Singalese method differs in two respects from that of the Filipino. The first is that the bottom of the drying kiln is level, and uniformly five or six feet below the grill on which the nuts are placed. The second and all important one is that the Singalese burns shells instead of husks as a source of heat for his drying operations. These shells are the product of previous dryings, and are fitted into each other like cups, five rows, or ropes as they are called, being used at the start and three at the finish of the drying. The rows of shells are turned so that one row when lighted at the open end burns inward, while those on either side burn toward the ground of the grill. In this way a steady heat is maintained and there is a total absence of smoke so fatal to the appearance of the copra of the Laguna and Tayabas province, as made under the present Philippine practice.

It may be asked why, if proper drying of copra is so simple a matter, it has not been brought to the attention of the Philippine grower before, since it would seem that the obvious advantages and the small changes necessary would lead the Filipino instantly to seize upon the Ceylon method and make it his own? It has been tried, and full instructions were sent out to every grower having more than one thousand trees, not once, but three

SUN-DRYING COPRA IN SOUTHERN PHILIPPINES



LAGUNA COPRA SACKED FOR SHIPMENT

times, with the request that they advise the Merchants' Association as to whether they would try this plan or not. Out of several hundred growers thus circularised, not one replied, and the inference is that the Filipino does not want to do any work to improve his products, but is perfectly willing that the Government should waste its money in trying to do for him what he could and should do for himself.

Cheaper Solution than Central

Not only were individual growers advised of this Ceylon method but an effort was made through the Compania Gral. de Tobacos, to have some individual grower try this method in the hopes that his success would make his neighbors revise their method of drying. Considerable correspondence was carried on by the manager of the Tabacalera Co., with one of its agents in Laguna province, but his final report was that it was impossible to try the method in Laguna as the bottoms of the drying kilns were so uneven. From this it will appear that the Filipino is not willing to invest ten minutes labor with a pick axe and shovel in order to advance the selling price of his copra. In view of these facts, which should be in the files in the office of Vice Governor-General Martin, for he was sent a complete file of the Merchants' Association reports on copra shortly after his arrival in the Islands, the copra committee has information that points to a far cheaper solution of the copra problem than the building of a central.

From the foregoing it would seem that the plan to invest Government funds in a central for the drying of copra, is exceedingly ill advised since it would not raise the quality of cocoanuts nor would it be able to make any saving in time over the present method of drying. At best it would not turn out better copra than can be produced by the Ceylon method of burning shells instead of husks.

If the Philippine Government is in earnest regarding its plan to improve the copra industry, it should begin at the bottom of the industry instead of at the top, and endeavor to secure better raw material before trying to obtain a superior finished product, the homely adage respecting the production of "silk purses from sow's ears" being particularly applicable in the present instance.

It may be argued that the adoption of the Ceylon method of grill-drying would not improve the oil content of the copra. This is a problem on which the Bureau of Science doubtless is fully informed, since experiments undertaken by the late Dr. Paul Freer, and continued under the present director, Alvin C. Cox, are on record and would readily afford information as to the acidity of the Tayabas product prior to shipping and after receipt in the Marseilles market. Preliminary experiments pointed to a large increase in the percentage of acidity and a corresponding falling off in the oil content in Laguna copra in transit from the Philippines to Marseilles. Whether this acidity is due to the creosote introduced by the present smoking method, or whether its origin is in the bacteria of decomposition that flourish on imperfectly dried Manila copra, is a question that the Bureau of Science probably could answer.

There seems to be, then, only one advantage that might come from the operation of the copra central and that would lie in its ability to refuse immature and unripened nuts, when offered by the growers, thus bringing about a general rise in the percentage of mature nuts that were brought to the central. But what would be the difference in thus underhandedly curtailing the liberty of the Filipino farmer to produce bad copra and the more direct and less expensive method of passing a law similar to that which has been enforced in Samoa? In regard to the latter feature it might go a step further and compel the grower to burn shells instead of husks, since the destruction of the husk is an economic loss to the Filipinos who are continually importing coir carpeting made from Ceylon cocoanut fiber on the one side, and burning thousands of tons annually of the raw materials from which the self same carpeting is made By passing a law forbidding the burning of this fiber, the Government would add at least $400,000 a year to the revenue of the Philippine cocoanut grower and the Government itself would gain, on a basis of a business tax of one per cent, some $4,000 a year.

However, this matter of saving the fiber is a small item when compared with that of improving the copra, since a comparison of the Philippine product with that of Ceylon proves that the Singalese reaps so much higher a price for his product, that if the Filipino would make as good a copra, his additional income from this great Philippine export would average $3,000,000 a year, or about 6 per cent of the total exports of the Islands. When the poverty of the Philippines is considered this sum appears well worth the effort necessary to save it, but the great question recurs as to whether the Filipino can be saved from himself and his product improved against his will. Save in matters of public order and sanitation, the American Government seems loath to say to the Filipino, "You must," preferring to let him work out his own economic salvation, aiding him only by good advice which more often than not is unheeded.

In these days of efficiency and scientific management it is a question whether an individual should be permitted to lower the standard of a country's export product as the Filipino certainly is persisting in doing by his present method of making copra. If poorly prepared copra were detrimental to his health, the Government would quickly step in to confiscate and destroy, but this matter concerns wealth, not health, and therefore the Government must keep its hands off. Yet the copra committee proposes to the Government that funds contributed to the public treasury by the whole people be put into a doubtful experiment for the few who are too slothful to do anything to aid themselves.

Singalese Could Teach Filipino

If the Government really is in earnest regarding the improvement of copra, why should it not bring in an expert from Ceylon where copra is prepared under the same conditions as in the Philippines. This expert could construct a few drying kilns after the Ceylon pattern, dry the copra by Ceylon methods, and then see whether it would bring Ceylon prices. Five thousand pesos expended in such object lessons brought to the copra makers' doors might cause them to do for themselves the work that the Copra Committee proposes to do for them. The Filipino farmer is averse to change and has little or no initiative, yet shown the better way to do a thing he will take it up, and this matter of copra improvement would have the lever of additional income to move him from his present inertia. If one grower using a Ceylon grill should get even slightly higher prices, other growers would follow until all Tayabas would be using the new method. Such would be the direct effect and it would come about in much shorter time than might be expected by those who have tried to induce the Filipino to put in other improvements, as the change to the Ceylon method requires only a slight expenditure of muscle and practically no cash.

Equate the $5,000 that the services of ten Ceylon experts would cost (they need not be highly paid Europeans but moderately intelligent Singalese), against the two or three hundred thousand pesos necessary for the central, and the practical advantage of the former becomes apparent to any one who knows how pinched for funds the Philippine Government now is. Taking into consideration also the fact that the central will not do the work expected of it, as it will have no advantage over the grill in saving of time, except at the expense of the oil in the copra, and that the copra it turns out will be no better from the oil millers' standpoint than that produced by the humble Ceylon grill, the construction of such an apparatus certainly would be a waste of public funds and its only possible justification would be in its power to compel the Filipino to let his cocoanuts ripen by refusing to accept the green ones he is sure to offer. When this same advantage can be secured by a stroke of the Executive pen on an Assembly Bill forbidding the making of copra from unripe nuts, the last argument in favor of the central vanishes. Were the drying of cocoanuts for copra by machinery a practical and thoroughly tested operation the case might be different and the Government might build one without the fear of having it left in idleness in the wilds of Tayabas, a monument to the ill-advised labors of the Copra Committee.

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CONTENTS

	Page
China's Corporation Regulations	125
Metalliferous Mines of Hunan	134
Industries of Hunan Province	138
What the Philippine Cocoanut Growers Need	139
Government in China	142
Chinese People's Convention	143
China's Need of Roads	144
Chinese Manufactories	145
Encouragement of Industry in China	146
Afforestation in China	146
Commerce and Industry of Chosen (Korea)	147
Canton-Kowloon Railway	153
Canton-Hankow Railway Bridge Tenders	157
Changchun-Kirin Railway. Its Strategic Meaning	158
Engineering and Financial Notes	160
Classified Index to Advertisers	165

GOVERNMENT IN CHINA

In the last issue of the FAR EASTERN REVIEW we published a brief record of the progress of the movement for the re-establishment of a monarchy in China up to the middle of August.

The Society of Peace, which must be credited with having initiated the public discussion of the dvisableness of a re-establishment of monarchy, has been severely criticized by some sections of the Chinese Press, notably by those papers which are controlled by Chinese educated abroad, but the bulk of editorial opinion appears to be in favour of the change. The military governors of the Provinces and a great number of prominent civil officials have openly supported the movement, while the open opponents of note have been few. Mr. Liang Chi-chiao, as was only to be expected when the respective parts played by the President and by himself in the reform movement which culminated in the coup d'etat of 1898 are remembered, has expressed himself as opposed to the reversion to monarchy. No other Chinese publicist of importance has come forward in defence of the republican system, though there is a tendency in some quarters to consider a change inopportune at the present time.

The foreign Press published in China, with the noteworthy exception of the *North China Daily News*, has questioned the advisableness of the change and has taken in some instances the view that the movement is due to personal ambition on the part of the President. The *North China Daily News* has regarded the question from a broader view-point, and has subjected it to sound constructive criticism. The Japanese papers for the greater part take the view that the question is one that concerns the Chinese alone, but several of them express the belief that China will be more likely to progress under a monarchy than under a system nominally republican.

The Council of State met in Peking on September 1. It was inevitable that the question that was engrossing public attention should come before this body, and considerable curiosity was evinced as to the attitude its members would adopt. When Vice-President Li Yuan-hung, the head of the Council, did not appear at its first meeting, a rumour was circulated that his absence was due to his disapproval of the monarchical movement. This rumour does not seem to have been based upon accurate knowledge. General Li Yuan-hung presided at the meeting held on September 6, at which a message from the President was read. We quote the official translation of this message textually:

"It is now four years since the people have entrusted me with the high office of President of the Chinese Republic. Moved by the fear that the task might be beyond my capacity, I have laboured, during the past troublous years, under much anxiety and misgiving and have looked forward to the time when I might be relieved of the pressing burdens of the State and permitted to retire from the same.

"But while I occupy my present position, it is my imperative duty and responsibility to protect the country and the people. It is my special duty to maintain the Republic as the existing form of government. Many citizens from the provinces have been lately petitioning the Tsan Cheng Yuan in its capacity of the Li Fa Yuan calling for a change of the form of the present government of the country. But this is incompatible with the position that I hold as President. Since, however, the office of the President is conferred by the people, the same must depend on the will of the people. And since the Tsan Cheng Yuan in its capacity of the Li Fa Yuan is an independent body and is therefore free from external interference, I ought not—strictly considered—to express or communicate any views (on the issue raised by the aforesaid petitioners) to the people of the country or to the Tsan Cheng Yuan in its capacity of the Li Fa Yuan. Inasmuch as any alteration in the form of government makes and involves an important and radical change in the Executive Power—and since I am the Chief of the Executive—I feel that it is impossible for me to observe silence, even though my speech may expose my motives to the risk of misinterpretation.

"In my opinion a change in the form of government carries with it such a momentous alteration in the manifold relations of the State that the same is a matter which demands and exacts the most careful and serious consideration. If the change is decided

on in too great a haste, grave obstacles will arise. The duty being mine to maintain the general situation, I have to state that I regard the proposed change as unsuitable to the circumstances of the country.

"As to the aforesaid petition of the citizens, it is obvious that the object of the petitioners is precisely to strengthen and secure the foundation of the State and to increase the prestige of the country; and it is not to be doubted that if the opinion of the majority of the people of the country is consulted, good and proper means will assuredly be found.

"Furthermore, it is not uncertain that a suitable and practicable law will be devised, if due consideration of the conditions of the country and careful thought and ripe discussion enter into the preparation of the Constitution of the Republic which is now being drafted.

"I commend this to your attention, gentlemen of the Tsan Cheng Yuan, in your capacity as acting members of the Li Fa Yuan."

In some quarters it was expected that this expression of the President's views would be followed by the dissolution of the Society of Peace and general discouragement on the part of the promoters of the movement. Why this opinion should have obtained it is difficult to conceive, as the President did not condemn the movement *per se*. His Excellency, while expressing his personal opinion that the change was unsuitable to the circumstances of the country, indicated that the question was one that could only be dealt with properly by an organ that was representative of the people. The interpretation to be put upon this is that the President holds that the people themselves must decide what system of government should be adopted, and inferentially that the President is prepared to submit to the will of the people, despite his own personal beliefs and predilections. A report, that appears to be well-founded, has gained currency, that the President by adopting the attitude he did probably saved the country from a *coup d'etat*. It is said that the supporters of the movement for the re-establishment of a monarchy were much more numerous and more powerful than was generally believed, and that they included practically all the military officials and a large number of the civil officials.

The demand for a reversion to the monarchical system was, therefore, supported by such a powerful and influential body of opinion that the President could not meet the situation by an emphatic *non possumus*. The constitutional course to adopt in such circumstances was obviously to remit the question to a body representative of the people, and if it were found that the majority really wanted the change it would be clearly the duty of the President to allow their desire to become effective. The President, owing to his firm control of the situation, was able to compel the advocates of the monarchical system to await an authoritative expression of popular opinion through a representative organ.

A regrettable incident in Shanghai has shown the irreconcilable character of some opponents to the movement. A bomb was thrown into the office of a newspaper that had recently been established to support the Society of Peace, and several people were killed. No doubt the better elements among the party that opposes any change in the form of government deprecate such outrages, but their cause is bound to suffer by this ready reversion to the "bomb and dagger" argument.

The Commission that is drafting the Constitution is continuing its labours. The preliminary elections for the Kuoming Hui-I, or Citizens' Convention, will take place in the middle of October, the final elections will be concluded by November 20, and the Convention will assemble in January next, if not earlier. Its first task will be to consider the draft Constitution, and in this connection it will be called upon to declare either in favour of a continuance of the republican form of government or the establishment of a constitutional monarchy. In most well-informed quarters it is believed that the majority will declare for a constitutional monarchy.

As a result of consideration of the petitions in favour of a Monarchy the State Council, on September 20, submitted the following suggestion to the President: "The Council has received from different bodies and persons throughout the country the first and second series of petitions in regard to the form of the State, amounting in all to eighty-two petitions. These petitions have been referred to a Committee for examination. On the report of the Committee, a meeting of the Council has been held and the matter discussed. It has been unanimously resolved that the form of the state is a matter of paramount importance. The intention and purpose of the petitions are no other than to strengthen the foundation of the state and to increase the prestige of the country. When the Constitution comes to be drafted, no doubt careful consideration will be given to the popular desire of the whole country for permanent peace and welfare and after mature thought and discussion, a good constitution will be framed. But the form of the state is an important constitutional question the decision of which rests with the National Convention. In accordance with Clause 7 of Article 31 of the Constitutional Compact this Council submits the suggestion to the Government that the President be requested to accelerate the convoking of the National Convention within this year or devise other proper and adequate means to consult the will of the people, with the view that a fundamental solution be found so that the general situation may be settled and the minds of the people be set at ease. The 82 petitions are sent herewith."

In reply to this suggestion President Yuan Shih-kai replied informing the Tsanchengyuan that as the power of finally passing the Constitution rests with the National Convention the question must be carefully discussed and solved without haste. The final election of the Convention will be completed on November 20, which has already been announced by Mandate. After the completion of the electoral affairs the Convention will be convoked as soon as possible in order to obtain an accurate and proper interpretation of the will of the people. The Bureau for the Convocation of the National Convention has been instructed to take note of the communication from the Tsanchengyuan and to hasten the completion of the arrangements for the election, which will take place in accordance with the fixed dates.

THE PEOPLE'S CONVENTION

Preparations for the election of the People's Convention (Kuo Ming Hui-I) are now proceeding, and it is expected that the primaries will be concluded about the middle of October, while the finals will be completed by November 20. Unless an earlier date is arranged the elected members, of whom there will be about 400, will meet in Peking, in the old National Council buildings, in January, 1916. This body is being convened simply to deal with the proposed permanent constitution which is now being drafted by a Committee of the State Council, and consequently it is the organization which will have most to say as to the future form of Government. Already the State Council designates it the one to determine the consideration of the question of the restoration of the monarchy, and no doubt the whole matter will be thrashed out by it.

The members will be elected under the regulations provided for the election of members for the proposed Li Fa Yuan (or National Assembly). The greatest care is to be exercised to prevent any fraud at the ballot box. Every qualified voter has to be vouched for, and may not enter a booth without a special ticket, or may not leave a booth without possession of another special ticket. Every balloting paper has to be enclosed by the voter in an envelope and deposited in the balloting box by him. He then has to sign and seal the register. Two scrutineers are to sit beside every ballot box and take the number of every vote deposited. At the conclusion of the voting the box is to be sealed under the auspices of special officials and only opened in the presence of the public on the day fixed for the purpose. When the ballot box is opened one official is to take the paper from the box, another is to read out the name, and at least four others are to check the name in the balloting book.

As has been explained in a previous issue of this journal the regulations for the Li Fa Yuan provide that the members shall be partly elected and partly appointed. Every Hsien, or district, will elect ten candidates who are to be nominated by the

Magistrates from among the natives of the district. Five of them are to be from among the wealthiest persons in the district, while the other five are to be nominated from among those who have had long administrative experience, a knowledge of law, or are scholars. Or failing sufficient possessing these qualifications the candidates are to be selected from among the propertied class. The ten candidates so selected by a district are to assemble in the District city and there choose from among themselves one elector, who is ultimately to proceed to the Provincial capital and there, with others similarly chosen from other districts, elect as members of the Citizen's Convention one-tenth of their number. The President retains the right to appoint, in addition to the elected members, one-tenth of the whole body, while each Provincial Governor will be entitled to appoint two members.

It will be thus seen that the Convention will be drawn from men of years and experience in Chinese manners and customs. There will be none of the energetic and inexperienced youthfulness which characterised the first parliamentary bodies of the Republic, and by eliminating this element the President and his advisers believe that they will be able to obtain more seasoned and more practical reasoning. There are many, of course, who will regret to see the absence of the soberer element of the young foreign-educated Chinese, but the deplorable fiasco of the first parliament is what has led to their exclusion, and they must be willing to suffer for the sins of the radical faction while some opportunity is given others to try and place the internal affairs of this country upon the basis they should occupy.

CHINA'S NEED OF ROADS

It has been said with much truth that a nation's progress can be gauged by the extent and degree of perfection of its means of transportation. The application of this test to China shows that progress has been very slow, in fact it may be said that, prior to the introduction of railways, there was retrogression. While it is not literally true that there are no roads in China, it is no exaggeration to say that there are no good roads outside the boundaries of foreign settlements and leased territory. The economic losses to the Chinese people due to the difficulty of transportation are simply incalculable. Moreover enormous loss of life is attributable to the same cause. Owing to the chronic neglect of roads and canals the failure of crops from drought or flood in one locality cannot be relieved by the surplus supplies of other regions. Millions of lives have been lost simply because the authorities have not provided adequate means of communication, which could have been furnished at a comparatively small cost.

The one sign of progress, as has already been suggested, is the construction of railways. But the benefit that the country derives from its railways is greatly discounted by the lack of facilities for the conveyance of produce and goods to and from the stations. If good roads radiated from each important railway centre so as to enable motor lorries and other vehicles of modern type to feed the railways, the latter would be of immeasurably greater benefit to the government and the people.

There is a certain amount of grim humour in the recollection that at one time China was held up to the world as a country in which most scrupulous attention was paid to the upkeep of roads and canals. Dr. Adam Smith refers to this in the "Wealth of Nations," published in 1776, though it is to be noticed that Dr. Smith regarded China's alleged pre-eminence in this regard with doubt. He wrote:—

"In China, and in several other governments of Asia, the executive power charges itself both with the reparation of the high roads, and with the maintenance of the navigable canals. In the instructions which are given to the governor of each province, those objects, it is said, are constantly recommended to him, and the judgment which the court forms of his conduct is very much regulated by the attention which he appeared to have paid to this part of his instructions. This branch of public police, accordingly, is said to be very much attended to in all those countries, but particularly in China, where the high roads, and still more the navigable canals, it is pretended, exceed very much everything of the same kind which is known in Europe. The accounts of those works, however, which have been transmitted to Europe, have generally been drawn up by weak and wondering travellers; frequently by stupid and lying missionaries. If they had been examined by more intelligent eyes, and if the accounts of them had been reported by more faithful witnesses, they would not, perhaps, appear to be so wonderful. The account which Bernier gives of some works of this kind in Indostan falls very much short of what had been reported of them by other travellers more disposed to the marvellous than he was. It may too, perhaps, be in those countries, as it is in France, where the great roads, the great communications, which are likely to be the subjects of conversation at the court and in the capital, are attended to, and all the rest neglected. In China, besides, in Indostan, and in several other governments of Asia, the revenue of the sovereign arises almost altogether from a land tax or landrent, which rises or falls with the rise and fall of the annual produce of the land. The great interest of the sovereign, therefore his revenue, is in such countries necessarily and immediately connected with the cultivation of the land, with the greatness of its produce, and with the value of the produce. But in order to render that produce both as great and as valuable as possible, it is necessary to procure to it as extensive a market as possible, and consequently to establish the freest, and easiest, and the least expensive communication between all the different parts of the country; which can be done only by means of the best roads and best navigable canals."

It is, of course, true that at one time China did possess courier roads which were adequate for the requirements of those days, and canals which were kept in a reasonable state of repair. That, unfortunately, is no longer the case, and in a new edition of a standard work on China* published a few years ago the humiliating admission was made:—

"In no civilized country of the world are communications so difficult as in China, . . . everything is still to be done in regard to good roads and the upkeep of canals."

In the same book appear the following significant statements:—Kansu.—Difficulty of conveyance and communication is the greatest hindrance of Kansu; Shansi.—The communications are difficult through lack of good roads; Kiangsu.—The land routes, or rather pathways, are little kept in good repair; Kweichow.—All transport has to be done by carriers or pack animals; Kwangsi.—The land routes are badly kept up and are nothing more than unbeaten tracks.

There are said to be twenty-one courier roads in China, but there are only six of importance. These run from Peking to Mukden; Peking to Chengtufu (Szechuen) via Taiyuanfu and Singanfu; Peking to Yunnanfu via Weihwuifu, Kaifengfu, Nanyangfu, Siangyangfu, Changtehfu, Yuenchowfu and Kweiyangfu; Peking to Kweilinfu (Kwangsi) via Weihwui, Hankow and Changsha; Peking to Canton via Nanchangfu; Peking to Foochow (Fukien) via Chinkiangfu and Hangchow. These roads have been allowed to fall into utter disrepair, and they are almost impassable, especially in the rainy season. Some of them are paved, but the paving through neglect has become more of a hindrance than a help.

The deplorable state of things extant in China in regard to facilities for transportation could easily be remedied. In Korea the highways were neglected as they have been—and are—in China. The Japanese, when they took possession of the country, immediately undertook the work of facilitating means of transport. The following extract from the "Annual Report on Reforms and Progress in Korea" for 1912-13 shows what has been accomplished.—

"The general plan of constructing 23 State roads, measuring over 587 ri,† at the cost of 10,000,000 yen, which is to be carried out in five consecutive years beginning with the fiscal year 1911, was fully stated in the previous report. Most of

* Richard's Comprehensive Geography of the Chinese Empire.

† A ri is 2.4 miles.

the time in the year 1911 being spent in preliminary preparations, actual work done in the same fiscal year did not amount to more than 18 per cent. of that allotted for the fiscal year 1911, amounting to 1,606,900 yen, and the fund for the fiscal year 1912 amounting to 1,305,000 yen, road construction was steadily carried on during the fiscal year 1912, and at the end of the year there was left a balance of 630,000 yen only, which sum is to be transferred to the account for the year following.

"Of the State road construction planned after the annexation as a five years' consecutive work, as much as 117.29 ri was completed by the end of the fiscal year 1912. Should there be added to this the construction prior to the annexation, the total length of State roads constructed by the Central Government reaches 325 ri 35 cho.

"As mentioned in the section dealing with financial readjustment, the fund provided for public works for the year 1913 being held over for one year, the original State roads construction plan of five years' consecutive work was extended to one of six years' consecutive work, as shown in the following table.—

Description	Estimates for Consecutive Works	1911	1912	1913	1914	1915	1916
	yen	yen	yen	yen	yen	yen	yen
Construction	8,700,000	1,740,000	1,305,000	1,740,000	1,305,000	1,305,000	1,305,000
Office Expenses	1,300,000	260,000	195,000	260,000	195,000	195,000	195,000
Total	10,000,000	2,000,000	1,500,000	2,000,000	1,500,000	1,500,000	1,500,000

"While the construction of new highways is in progress, the maintenance and repair of constructed roads ought equally to be carried out. To effect this in the case of State roads aggregating 300 ri constructed since the Protectorate regime, 100,000 yen was apportioned in the budget for the fiscal year 1912, and 60,000 yen of that sum was given to Provincial Governments, which were required to participate in repairing State roads, while 40,000 yen was designated for repairs directly conducted by the Central Government.

"The Road Regulations promulgated in April, 1911, generally provide that the maintenance and repair of first and second class roads shall be undertaken by the General Government, third and fourth class by Local Government, and others, i.e. village roads, by village communities. Yet first and second class roads or State roads having close relations with localities, the Provincial Governments were, in accordance with the Government-General's Instruction No. 60 issued in May, 1912, made responsible for the maintenance and repair of State roads in their respective jurisdictions, except those parts requiring important and expensive engineering works, and the expenses incurred in repairing such may be partly defrayed by the Central Government and partly by labour contribution which, in accordance with ancient custom, may be made use of in effecting such work.

"Road construction by the Central Government only being still inadequate for the expansion of transportation facilities, construction of local roads by Local Governments has been encouraged especially since the annexation. Local roads were constructed not only by the Provincial Governments with money defrayed from the Local Expenses Funds, or with subsidies given by the Central Government, but by Prefectural and District Magistracies with contributed labour, or with subsidies given by the Provincial Government. The custom of *Puyok*, contribution of labour for road construction or other public works, has been in existence for ages past. This system of labour contribution became later on greatly abused, and gradually most of the *yangban*, the literati, and influential people were exempted from the service, until finally those called upon for such service were the small farmers only. As this system in itself is good, of great use in road construction, it has been adopted to help on the work. However, in order to distribute the burden equally, the authorities concerned call upon Koreans and Japanese alike, whether rich or poor, for labour contribution, allowing those not capable of contributing labour to liquidate the demand by the payment of a sum of money corresponding to the amount of labour required of them.

"Local roads repaired or constructed throughout the Peninsular during the year 1912 aggregated 74.20 ri and cost 547,450 yen of which 299,996 yen was defrayed from the State Treasury and the remainder from the Special Expenses Fund for Local Needs.

"The following table shows the road construction by localities from the year of annexation up to the end of December, 1912.

September, 1910—December, 1912.

Class of Road	Length constructed by State Subsidies.	Length constructed by Local Expenses Fund.	Length constructed by Labour Contributed.	Total.
	Ri	Ri	Ri	Ri
Streets	3.33	1.01		4.34
First Class Roads	6.06	4.01	112.04	122.12
Second Class Roads	76.17	35.29	346.22	458.33
Third Class Roads	55.01	175.72	482.29	713.07
Other Roads ..	5.01	12.11	781.04	798.18
Total ..	146.25	228.20	1,722.25	2,097.55

But it is not only in Korea that the supreme importance of providing good roads is recognised. In the Philippines, in Indo-China, in Netherlands-India, in the Straits Settlements and the Federated Malay States the highways are excellently constructed and are kept in perfect repair. Further afield, in Europe, America, Africa and Australia, the closest attention is paid to the betterment of communications. In many instances in America of late years the people, of their own volition, have turned out to work together on a prearranged day to improve the roads, and the Governor of a State and other high officials might be seen setting an excellent example by engaging in unaccustomed and arduous work for the public benefit. In other countries also the "Good Roads Movement" receives the support it deserves, and a healthy rivalry is created between different districts to provide the best highways.

The improvement of the roads in China is a work that can be proceeded with without any delay, and indirectly the improvements would pay for themselves many times over. An example of what can be done for street improvement has recently been given in Peking and it would be easily possible at reasonable cost to construct serviceable inter-provincial roads. The services of experts who have knowledge of road construction in the Far East should be secured and a beginning made upon the roads which feed, or rather should feed the railways. This is perhaps a more important reform than any other awaiting attention in China, and the government should lose no time in making a beginning. It might be possible to devise means, if lack of funds be the obstacle, whereby foreign financial assistance and expert advice could be secured. But, in any event, the government will better justify its claim that it exists for the benefit of the people if it devotes immediate attention to this matter which has been so shamefully neglected in the past. The people of the districts which would benefit would probably in many cases be only too glad to give their services either gratis or for a minimum wage, and in places where this expedient could not be adopted useful employment could be found for prisoners, for disbanded troops, or for the tens of thousands who are unemployed.

CHINESE MANUFACTORIES

Early this month an exhibition of articles manufactured in the city of Peking was held at the Temple of Agriculture, Peking, under the auspices of the Peking Municipal Council. As a prelude to the exhibition of the products of all China, which is to be held later, it was a great success, and wares were displayed which the casual foreign observer of city shops might be excused for failing to know were produced in the capital. Utilitarianism and art shouldered it cheek by jowl, but it must be confessed that the workmanship in the art

objects was far superior to that shown in the numerous articles designed to ameliorate the conditions of life. A fairly wide range of products was covered: utensils for the school, from chalk and pencils to drawing instruments; flour and foodstuffs; preserved fruits and wines, beer and cordial waters; clothes Chinese and foreign; furniture and stoves; working tools and saddlery; farm implements and looms; exquisite lacquer ware, silver, jade, cloisonne, silks, and wood carving of splendid quality. All were well arranged for inspection, and during the ten days the exhibition was open about ten thousand people were daily attracted. The Municipal Council was interested in the exhibition only because it was an initial attempt and the manufactures required assistance in carrying out details of collection and arrangement of exhibits. Mr. Kungpa T. King, of the Ministry of the Interior, took a leading part in organizing the exhibition. Mr. Chang Yu-shun attended to the collections, Mr. Wang Yang-ping was the Secretary and Mr. Chen-kuo saw to the details in the grounds. Considering that only twenty days were devoted to the collection of exhibits the result was surprisingly successful.

One of the outstanding features of the exhibition was the evidence afforded of the effort being made on the part of certain Chinese to produce articles of western character. That the means of production are of a crude nature is made obvious by the nature of the finished article, but realising that those who essayed to imitate the creations of other nationals worked under the greatest difficulties the results of their enterprise are creditable. When we speak of imitating the creations of other nationals we do not mean in the direction of infringing trade marks. We saw only one exhibit which actually infringed a trade mark, and that was a gummed paper for catching flies; and we saw only one other which bore a designed semblance to another well known product—a sauce. The label was of the same colour and design as Lee and Perrin's product, but it was not an attempt at copying the trade mark. Apart from these two exhibits there was nothing to complain of and the other foreign-copied articles displayed were not of a protected character. That they were made so well under great difficulties indicates that they could be properly produced with machinery, and one good this and other exhibitions might do is to force upon responsible Chinese recognition of the great necessity and the great demand that exists for the introduction of modern industrial machinery and for the organized development of an industrial policy. It has been long known that the Chinese have a peculiar talent for mechanical work, and it is regrettable that the only ones who have so far employed it to any extent are the foreigners in the Treaty Ports or elsewhere where industries have been built up under foreign direction and with foreign capital. The Chinese Government might well devote itself to the problem of utilizing this tremendous latent asset, and it is sincerely to be hoped that the excellent work recently inaugurated by the Minister of Agriculture, Commerce and Industry will eventually develop into a movement for the widespread introduction of modern industrial methods. The salvation of China depends upon this as much as upon anything else.

THE ENCOURAGEMENT OF INDUSTRY

The bestowal of congratulatory tablets by the Chinese Government upon certain industrial undertakings would seem to be convincing evidence that at last there is an awakening in favour of industrial expansion. Some time ago the Ministry of Agriculture, Industry and Commerce recommended the President to confer tablets upon nine industrial concerns, *pour encourager les autres*, and about the middle of this month the same Ministry recommended a further seven concerns for similar recognition. The President accordingly approved the bestowal of tablets upon the Commercial Press of Shanghai, the Chunghua Book Company of Shanghai, the Hanyang Tobacco Company of Hongkong, the Yangtsze Engineering Company of Hankow, the Taifoong Canning Company of Shanghai, the Silk Weaving Guild of Hangchow, and the Hua An Life Insurance Company of Shanghai, "as an encouragement to merchants." That the Central Government should thus officially display an interest in commercial and industrial development in China will be of considerable satisfaction to those who have embarked their capital in enterprises, and it will be, no doubt, accepted as a precursor of legislation designed to protect all who may incline to enter the industrial field. Legislation with this object in view is badly needed. Although much progress has been made in China in the preparation of the public mind to accept foreign inventions, such as railways and machinery, no-corresponding advancement has been made in fitting the official mind throughout the interior to regard a new industry as something else than a freshly created source of taxation. Many officials in the country still cling to the obnoxious idea that any civilian who devises a new method of producing wealth is fair game for the tax collector, and it is regrettable that in many cases they have been able to impose their wills upon the people under their jurisdiction to the detriment of development and the damage of individual interests. Though it is acknowledged that any widespread reform is difficult in China it is competent for us to draw the attention of the Government to the necessity of extending their recognition of industrial effort to the vouchsafing of security to those outside of the Treaty ports who are wishful of establishing new industries in various provinces. There are successful industries in some places fully worthy of tablets, but there are many others equally worthy of flattering epitaphs that have gone to their graves "unknelled, uncoffined and unknown" after impotent and vain struggles against the oppression of provincial officials. Well might the Government investigate the conditions of industries throughout the country with the object of alleviating the disabilities under which they labour, and we commend to the attention of the Minister the desirability of removing completely the right which time-honoured custom has conferred upon District Magistrates and others to levy imposts upon industries now existing or upon those that are endeavouring to get their heads above the water. A step in this direction will be received by the people as a tremendous boon, and will do more to put the nation upon its feet than any multitude of rules and regulations that might be devised and issued but which are seldom adhered to.

AFFORESTATION IN CHINA

It will be gratifying to those who have long advocated the adoption by the Peking Government of a consistent policy of afforestation throughout China to learn that the Minister of Agriculture, Industry and Commerce has seriously taken up this question. For some time he has been considering the details of a general scheme of afforestation, and we understand that not only is the employment of an expert contemplated, but that arrangements have been made to establish bureaux in various parts of the country for the introduction and carrying on of experimental work. Guided by efficient talent the scheme should quickly prosper and should prove within a few years to be of lasting benefit to the denuded parts of the country. China is in such a lamentable state as the result of thoughtless denudation of timber in years long since past that any official who can have belts of trees planted will rear for himself a sufficient monument even if nothing else is done to recognise his labours. That the present Minister of Agriculture, Industry and Commerce is fully alive to the grave necessity of extensive tree planting is indicated by his activities and by the following message of recognition which he recently indited to the Dean of the College of Agriculture and Forestry in the University of Nanking:

The University of Nanking has been in existence for a number of years. Its well-known success has proved it to be a beacon light of education.

While we fully admire the benefits derived by students from the studies generally taught in this University, the Department which stands out as being pre-eminently practical and useful is, in our estimation, the College of Agriculture and School of Forestry. Knowing its careful organisation and practical methods of training, the Governors of Anhui, Shantung and Szechuan have sent students to this Department to study Agriculture and Forestry and are paying all their expenses.

As a further recognition of the value of this Department, the Ministry of Agriculture and Commerce has arranged to send twenty-four of our students from Peking to study forestry at the University of Nanking.

The usefulness of the Agricultural Department of the University of Nanking has not been limited to ordinary studies and practice. Through its initiative and energy, the Colonization Association was organized and is being directed. The object of the Colonisation Association is to assist destitute people to cultivate vacant lands; and during the past two years, in the face of drought and locusts, it has succeeded in doing no little good. China, being an agricultural country, is thankful for such assistance.

The location of the University of Nanking on the great waterway between the North and South makes it a convenient centre in which to investigate rinderpest and other cattle diseases, and to disseminate among farmers usefull scientific knowledge of how to treat these destructive plagues. In consideration of the good work which the University has already done, the Ministry of Agriculture and Commerce has resolved to co-operate with the University directors and to give all the assistance possible if the University establishes an institute for the purpose of developing practical scientific work on these lines.

The University has been built up on private donations. It depends for its maintenance and development on the gifts of Chinese and American philanthropists. I sincerely hope that all may bear this fact in mind and give liberally to the support of an institution that is rendering such valuable services. May Heaven prosper the work and those supporting it; the latter will have the satisfaction of knowing that they are contributing to a work of extreme value to our country.

CHOW TZE-CHI.
Minister of Agriculture and
Commerce, in the Republic of China.

Peking, August 12, 1915.

COMMERCE AND INDUSTRY OF CHOSEN (KOREA)

Financial and industrial circles in Chosen in 1914 were somewhat affected by the depressed conditions prevailing in Japan and throughout the world. The rice crop, the foundation of the country's wealth, was 60,309,468 bushels (compared with 50,013,089 bushels in 1913), and was exported in increased quantities, notwithstanding that the price fell 50 per cent. Other crops—beans, ginseng, cotton, and tobacco—were good, though prices were low. Mining made a steady development, showing slightly increased outputs of gold, iron, and coal. Some lines of manufacturing industries, such as cigarettes, canned goods, and leather manufactures, were also encouraging, as a result of the increased demand created by the war and of the Government's policy of promoting home industries.

The collection of revenues and taxes was satisfactory, notwithstanding the increased rates and the new taxes put into operation. The banks just about held their own, the Bank of Chosen (semi-Government) declaring a dividend of 7 per cent.

The deposits in postal savings banks at the end of December, 1914, were about $2,900,000, a slight gain, and the tendency toward steady increase still continues.

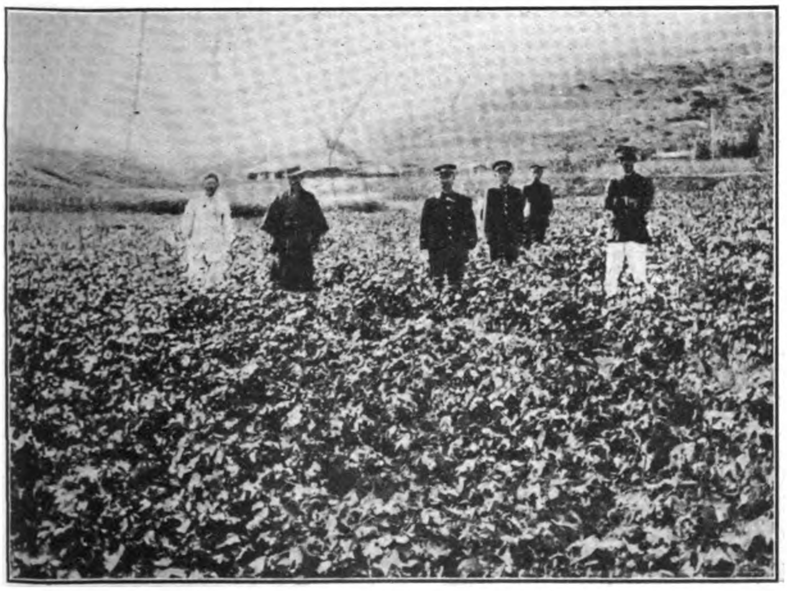
Provision made by the Government General for the establishment of an increased number of people's banks, to improve local conditions among farmers, led to 210 such banks being inaugurated with a capital of over $1,500,000, of which the Government provides $1,150,000.

The yield of rice in 1914 was a "bumper crop," and the demand in Japan for Korean rice was brisk, while experimental shipments of Korean rice were made through Kobe to Portland, Ore. According to official estimates published in September the bean crops in Chosen last year were expected to amount to 14,081,212 bushels, showing an increase of 2,106,740 bushels, or 17.5 per cent, as compared with the preceding year. The soya bean is second in the agricultural products of Chosen, between 2,500,000 and 3,000,000 bushels, valued at between $1,500,000 and $2,000,000, being exported annually to Japan.

The importation of yellow tobacco leaves from America by local manufacturers of cigarettes amounts to about 828,000 pounds, and the Government General has been carrying on experimental plantations of American tobacco in Chosen. Both climate and soil are well suited for its cultivation and the area devoted to it is steadily on the increase. Last year it increased to 294 acres, with a crop weighing 331,200 pounds. As the tobacco produced on an acre of ground ranges in value from $40 to $80 many farmers are anxious to undertake its cultivation. Fearing overproduction, the authorities will restrict the area and it is reported that of 1,225 acres asking permission only 490 acres will be put in tobacco in 1915.

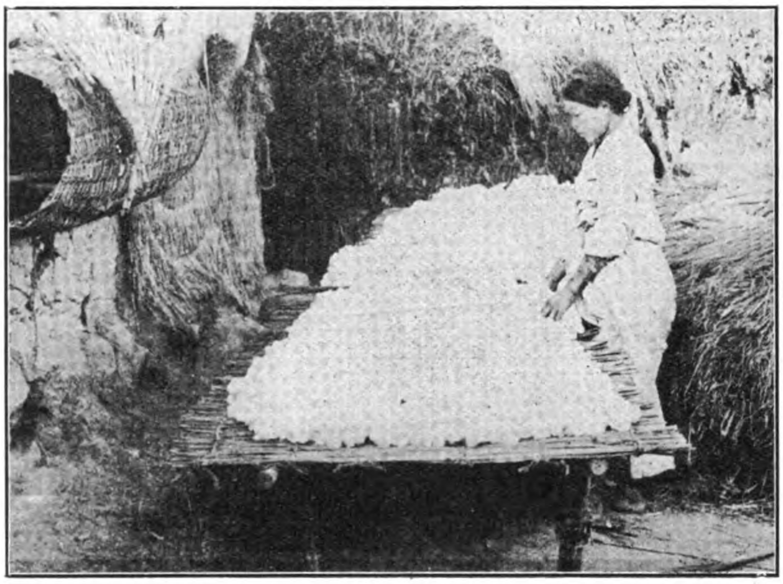
Yield, Prices, and Exports of Silk

On account of the great quantity of spring silkworm eggs hatched, and of the favorable weather experienced, the quantity of cocoons obtained during 1914 was unprecedentedly great, reaching 198,400 bushels for all of Chosen. This represents an increase of about 30 per cent. Prices were from $3.80 to $5.80 per bushel. Exports to Japan during 1914 amounted to about 39,680 bushels, valued at $149,400, an increase of 50 per cent in quantity and 260 per cent in value.

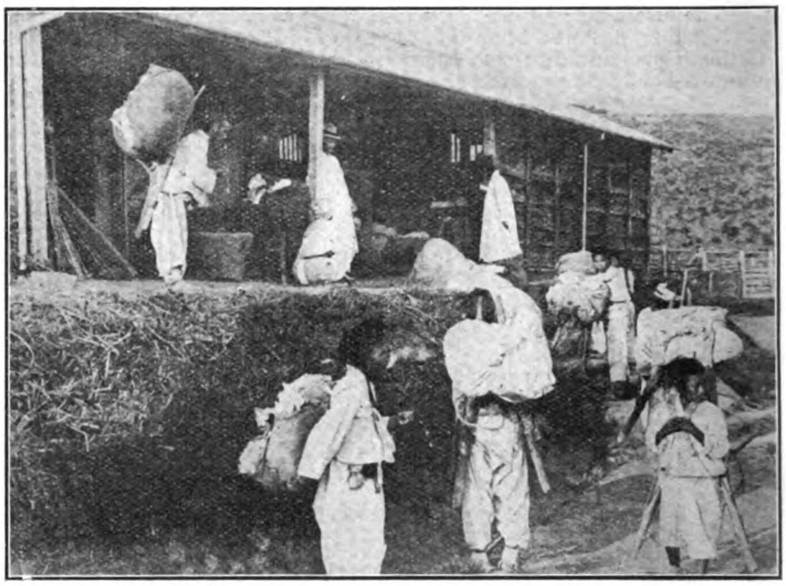


CHOSEN'S NEW INDUSTRY—UPLAND COTTON FIELD

KOREANS GATHERING CROP OF UPLAND COTTON



KOREAN WOMAN DRYING RAW COTTON IN THE SUN



PURCHASING RAW COTTON FROM KOREAN FARMERS

Ginseng farms in 1914 aggregated 161,906 kan (1 kan=about 4 square yards) producing 280,166 pounds, of which the Government purchased 75,969 pounds of the best at $2.24 Gold per pound, for the manufacture of red ginseng. In comparison with six years' average annual production, an increase of 33,675 pounds has resulted from the Government measures for the prevention of disease. The roots harvested in 1914 were planted in 1909.

The total area devoted to cotton of the upland species during 1914 was about 51,450 acres, the crop obtained being estimated at 28,000,000 pounds in weight.

As a result of the encouragement given to farmers to plant this grade of cotton, the area is increasing and it is estimated that during 1915 upland cotton land will reach 83,300 acres, an increase of 31,850 acres over the preceding year.

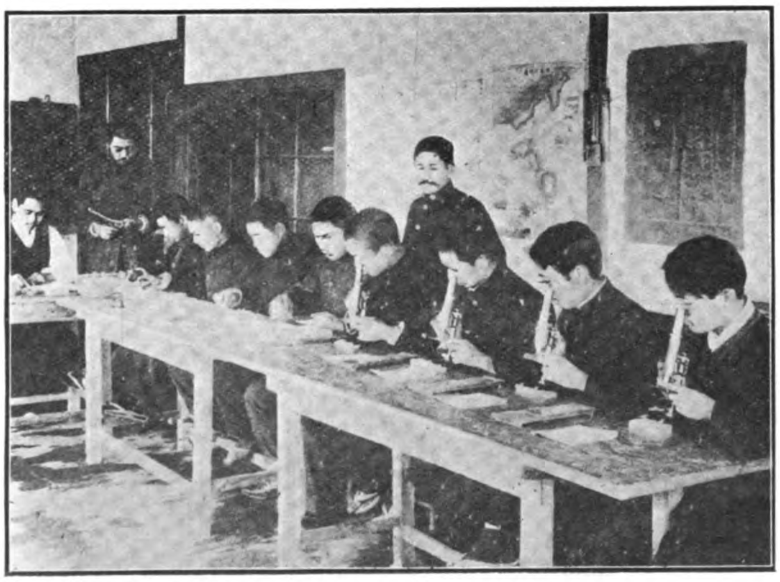
The strong demand for cattle in Russia caused an experimental shipment of 1,000 head of Korean cattle to Vladivostok and the beginning of negotiations for 20,000 additional head, which naturally gave a strong impetus to the breeding of cattle in Chosen. Protection given to the property rights of individuals and the rise in value of agricultural products caused a steady increase in the reclamation of waste lands by Japanese and Koreans. During 1914, 595 applications, covering 106,283 acres, were filed with the authorities. There are 180,930 acres of waste land throughout the peninsula, 99,303 acres being State owned and 81,627 privately owned.

Canned Goods and Salt Industries

The preparation of preserved goods is one of the new industries introduced by the Japanese since the annexation. According to the official returns for 1914, Chosen produced 137,810 dozen cans of marine products, worth $159,913; fruits and vegetables, worth $8,733; and bottled provisions, worth $981.

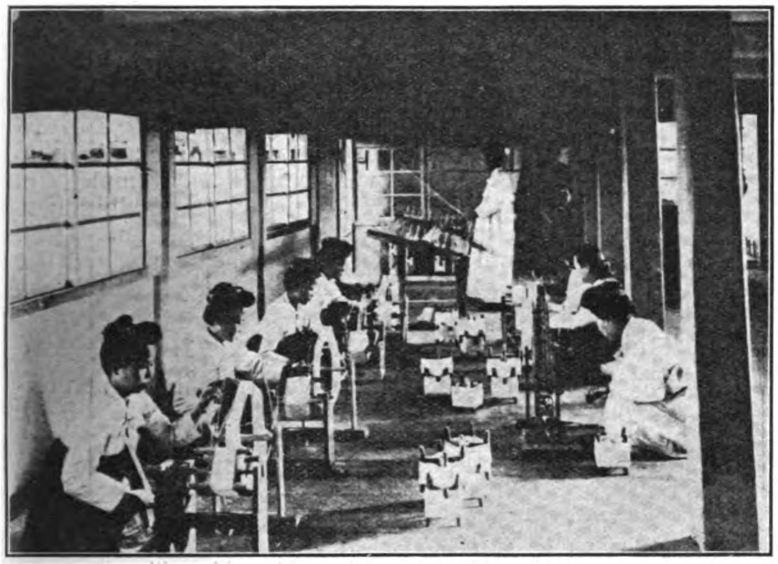
The manufacture of salt at the Government salt pans at Kwangyang and at Chuan ceased on October 30, 1914. The result was not satisfactory, the total output reaching only 85 per cent of the estimated output—74,573,333 pounds. This poor result was attributed primarily to the fact that rainy weather prevailed at Kwangyang for a long period. This failure of the Kwangyang salt pans offset the good results obtained at the Chuan pans. The output from Kwangyang for 1914 was 54,591,227 pounds (81.3 per cent of the estimate) and from Chuan 9,092,053 pounds (122.4 per cent of the estimate). New season estimates call for a total of 90,520,000 pounds during 1915, an increase of 26,826,720 pounds. In this connection it is of interest to note that an order has been placed with the Government General of Chosen for some 10,000,000 pounds of salt for use in the Russian maritime provinces due to suspension of imports from one of the belligerent countries.

Last year 999,646 gallons of sake, 5,128,962 gallons of distilled spirits, 1,231 gallons of liquor prepared from fruit juices, and 28,851,538 gallons of miscellaneous liquors, amounting in value to $6,130,368, were produced in Chosen.

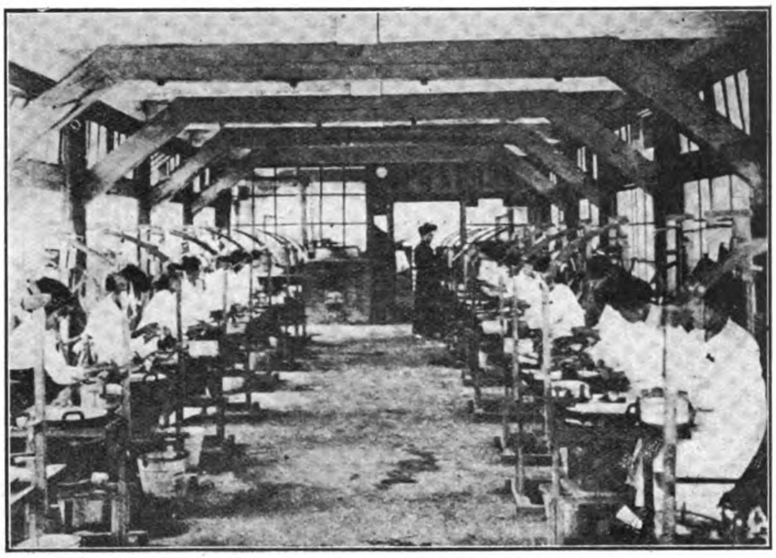


MICROSCOPIC EXAMINATION OF KOREAN SILKMOTHS

TENDING CATERPILLARS DESTINED TO BECOME MOTHS

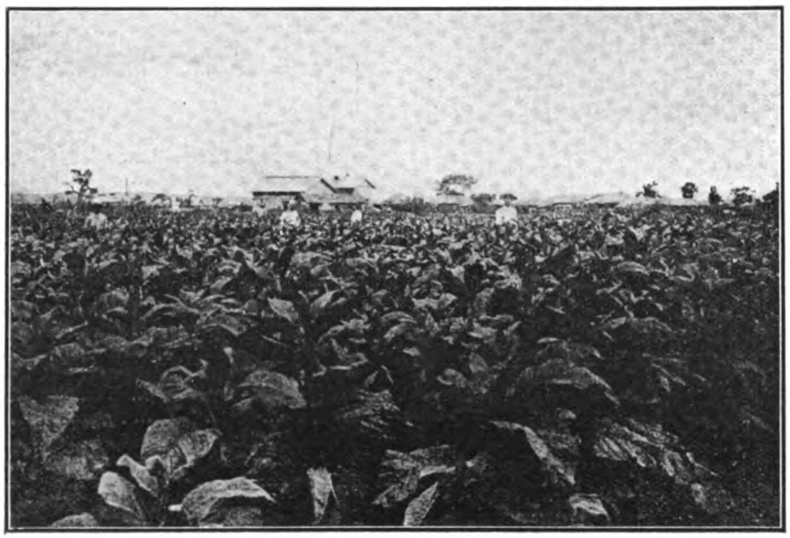


Silk-Reeling in Korean Sericulture School



Training Korean Girls in Spinning Silk Thread

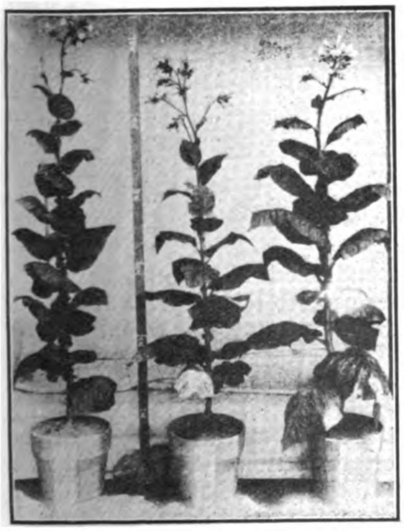
The latest investigation made by the Government General shows that the annual production of paper and paper manufactures in Chosen is valued at $427,997. The paper manufactures consisted of paper boxes, fans, umbrellas, and lanterns; besides these, 22 tons of pulp, valued at $1,892, were manufactured. The manufacture of pulp is a Japanese monopoly.



Taiden (Korea) Experimental Tobacco Farm

According to a statistical report of the production of textile fabrics in Chosen during 1914, recently published by the Government General, cotton cloth heads the list with 19,292,086 yards, valued at $1,470,081, and hemp cloth second, with 13,441,087 yards, valued at $1,073,897. In addition to these $3,181,801 worth of T-cloths, silk cloth, and other textiles were produced during the year. Practically all of these goods are produced in the homes, as there are no factories in Chosen for the production of these articles.

The largest tobacco concern withdrew its business from Chosen entirely about the end of last June. Not only did the company close its factory at Chemulpo, but it withdrew all the tobacco in the hands of retail tobacconists. Between July and December, 1914, only $37,913 worth of manufactured tobacco was imported into Chosen, a decrease of $94,325, or about 71 per cent, as against the figures for the corresponding period of the preceding year. The manufacture of tobacco by local companies partly accounts for the decrease of the import.



Specimen of Japanese Tobacco

It is reported that a new mining law is being drafted by the authorities of the Government General, and it is generally understood that one of the new requirements will be that companies shall establish head offices in Chosen. The more important foreign mines, however, are operated under special concessions. The total output of gold in Chosen during 1914 approximated $5,000,000, the mines worked by foreigners showing an increased output of some $500,000 over the preceding year, while those worked by Japanese and Koreans showed a decrease of something over $300,000. Arrangements were completed between the Japanese holder of a large placer gold-mining concession in South Pyeng An Province and an Australian company for the working of this concession. The same Australian company has recently purchased other placer fields in South Ham Kyong Province, work in both cases to be started during 1915.

Coal in Chosen, is small in quantity and rather inferior. The total output for 1914 was 200,000 tons, valued at $700,000. However, the local press reports the discovery of a rich coal mine near Yongil Bay, on the southeast coast.

The fishing industry in Chosen is developing. Last year 17,472 boats, manned by 137,858 fishermen, obtained marine products valued at $5,853,358.

The Mitsui Bishi Co., of Tokyo, Japan, are to erect an iron foundry at Kenjiho, near Pyengyang. The machinery was originally ordered from one of the belligerent countries; but it is now understood that it was ordered from the United States after cancellation of the first order.

At present there are in Chosen 13 electrical companies with an aggregate capital of $5,403,300. The Japan-Korea Gas and Electric Light Co., and the Taiku Electric Light Co., paid dividends to their shareholders; eight other companies did not declare dividends.

Specimen of White Burley for Cigarmaking

The general condition of the foreign trade of Chosen for

the year 1914 is shown by the following table in which Japanese yen have been converted into United States currency at the rate of $0.498:

Trade.	1913	1914
Exports	$15,377,714	$17,125,616
Imports	35,646,963	31,489,766
Total	51,024,677	48,615,382

Japan's share in the total foreign trade of Chosen was about 75 per cent ($33,681.722), or seven-eighths of exports and two thirds of the imports.

U. S. in Third Place

It is worthy of note that at the end of 1914 the United States was firmly intrenched in the third place in the total trade, being led only by Japan and China; and this, too, in spite of a decline of $364,000 in imports of flour and of $272,000 in kerosene, which articles have hitherto formed a considerable portion of the United States trade. The conclusion follows that this trade, instead of being confined to relatively few articles, is being extended over a wider range of goods.

Foreign Trade According to Countries.

Countries.	1913	1914
Japan	$32,739,990	$33,681,722
China	6,946,168	6,114,907
United States	3,953,733	3,097,263
United Kingdom	3,874,454	2,727,731
Germany	841,320	458,810

The decrease in the value of the imports during the year was very general, due primarily, of course, to the war, and also to the policy of the Government to encourage home industries. As the figures so far published have no reference to the trade by countries, it is impossible to tell which is suffering the most, so far as Chosen's trade is concerned, although it is apparent that there was a decided decrease in imports of shirtings, cottons, and tissues, in which the United States had but little interest, as well as in iron materials and manufactures in which it had its share.

Increased Exports of Products

The increase in exports was caused mainly by the greatly increased shipments of rice to Japan and by the demand from Russia for live stock and hides, although there was some increase in most of the items. The marked exception was in beans, which dropped $75,000, probably as a result of their being used more extensively as food, in place of the exported rice; and to the dullness of the bean markets in Manchuria and Japan.

Steamships and sailing vessels registered in Chosen during 1914 included 79 steamers, tonnage 9,483; and 238 sailing vessels, tonnage 6,083. There were also 15 vessels of a total capacity of 381 tons. The Government General appropriated some $10,000 last year for shipping subsidies; also $85,000 for new services was embodied in the budget, but this failed to pass on account of the early dissolution of the last Imperial Japanese Diet.

Railways, Telegraphs, and Roads

The year 1914 in Chosen was marked by the completion of two additional branch lines, the Taiden-Mokpo and the Seoul-Gensan lines of the main railway. These branches are important, the former opening up a rich agricultural section in the southwest and the latter giving a strong impetus to the development of the industries of the east coast. The completion of these lines makes the total mileage of the Chosen Government railways 990 miles.

Proposed lines are from Taiku to Gensan, which will open up the southeastern country; from Hamheung to Chongjin along the northeast coast; from Pyeng Yeng to Gensan; and a line along the Yalu River. The survey of these four routes is now in progress. During the latter half of 1914 the total receipts of Chosen railways fell $915,286 below the estimates, the receipts being $3,710,081. However, both passenger and freight traffic showed increased returns over the preceding year.

Telegraph and telephone wires are being gradually extended, and the total length of routes along which telegraph wires are laid is 4,109 miles. Telephone routes are 6,671 miles long. Telephone service is now installed in 45 of the principal cities, with 9,500 subscribers.

Considerable progress has been made in the improvement of the highways throughout Chosen in recent years; $5,000,000 was appropriated by the Government in 1911 to be used in a period of five years. Work so far planned will be practically completed in time for the opening this fall of the industrial exhibition to commemorate the fifth anniversary of the annexation. These highways are broad and well constructed, being adapted for automobile traffic, and open up many districts not yet reached by railways.

Budget of Chosen for Fiscal Year 1915

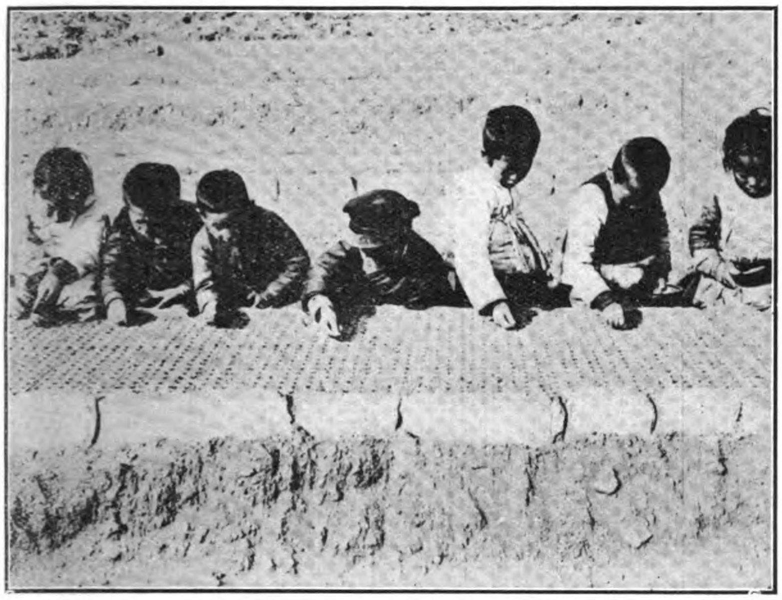
The revised budget of the Chosen Government for the present fiscal year (1915) was made necessary because of the failure of the regular budget to pass the Diet.

The following is an outline of the budget of Chosen for the fiscal year 1915:

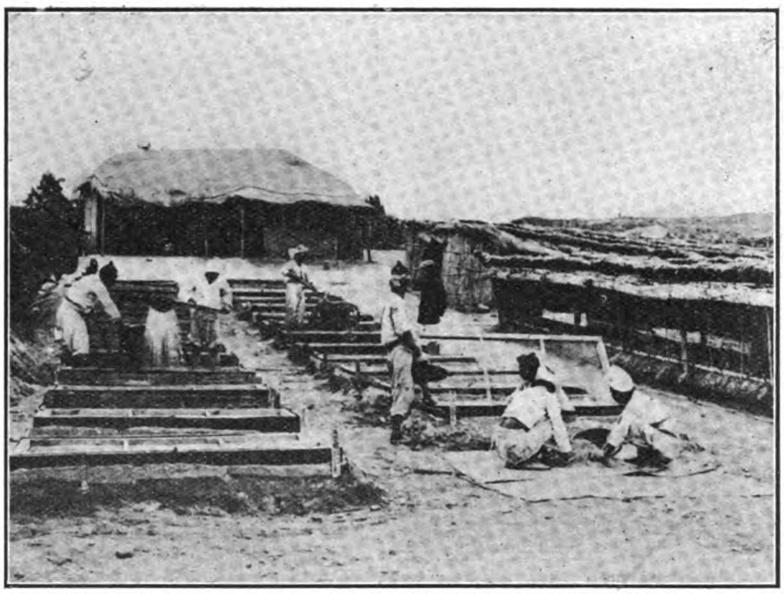
REVENUE.	AMOUNT
Ordinary:	
Dues and taxes	$8,526,316
Stamp receipts	854,530
Receipts from Government paddy fields	757,674
Receipts from Government-monopolized enterprises and Government properties	8,937,937
Miscellaneous receipts	399,190
Total	19,475,533
Extraordinary:	
Loan for starting enterprises	4,299,895
Subsidy from Tokyo Government	3,984,000
Total	8,283,895

EXPENDITURE.	
Ordinary:	
Prince Yi household	747,000
Government General	1,602,906
Law courts and prisons	1,285,712
Police	1,629,613
Provincial offices	2,024,859
Schools	165,916
Custom houses	293,408
Model agricultural stations	97,440
Pyongyang Mining Station	386,295
Central chemical laboratory	78,717
Postal and telegraph communication	1,791,771
Railway enterprises	
Repairs	3,765,034
Miscellaneous expenses	159,360
Transferred to general account	2,599,405
Reserve	199,200
	498,000
Total	17,489,576
Extraordinary:	
Encouragement of Industry	
Gendarmerie	$118,137
Korean troops	500,006
Land investigation	67,218
Subsidies	1,791,258
Fusan waterworks	14,940
Construction and repairs	691,693
Public works	1,410,860
Railway construction and repairs	3,774,840
Tapping of coal field by Pyongyang mining station	19,860
Investigations	219.662
Traveling to foreign countries	9,960
Seoul industrial competitive exhibition	95,457
Arrangements for celebrating the coronation	15,438
Total	10,167,092
Grand Total	27,656,668

A report which has just been published from Count Terauchi, Governor General of Chosen, was made to the Experts at Tokio, showing various enterprises undertaken and carried out during the three years following annexation. Included in this publication are the more noteworthy of the proclamations and instructions issued by the Governor General during this period. Among the topics that are touched upon are the cultivation of cotton, stock farming, sericulture, the production of rice, and the regulations intended to increase efficiency in handling goods at the customhouse.



Korean Children Sowing Ginseng-Seeds



Nursery Bed of Ginseng

Count Terauchi's statement refers to the fact that Japanese migrating to Chosen have been steadily increasing in numbers since annexation. In 1910 the Japanese living in the peninsula numbered only 146,000, forming some 43,000 households. In June, 1913, the figures had increased to more than 264,000 and 75,000, respectively. The statement continues, in part:

In former days Japanese residents in Chosen mostly congregated in the open ports and vicinity and engaged in the import and export trade or in retail business on a small scale. After annexation, however, when peace was generally restored in the interior and traveling and habitation by Japanese became safe, Japanese settling in important places outside the open ports and engaging in mining, agriculture, fishing, transportation, and other lines of business steadily increased.

Japanese Turning to Agriculture

Especially noteworthy is the fact that Japanese engaged in agriculture, an industry which requires much time before substantial profits can be obtained from it, have changed their method of conducting it. Formerly Japanese, buying paddy and dry fields in Chosen, aimed at obtaining incomes by renting them to Korean tenants or reaping profits by reselling them. Now those undertaking agricultural industry themselves are gradually increasing.

Besides, as a result of the efforts put forth by the Oriental Development Co., under Government direction, to encourage the immigration of Japanese farmers, the number of Japanese farmers living in Chosen has greatly increased. Thus at the time of annexation the total number of their households was about 2,130. These figures increased to 2,960 during the following year (1911) and further increased to 4,380 during 1912, showing an increase to more than double those in the year of annexation.

Cotton can be cultivated with advantage in all parts of Chosen, but cotton of native species has been found not quite good enough for spinning purposes. In consequence measures were taken to improve it. At the same time, it being recognized that cotton of the American upland species grows well in south Chosen, the former Korean Government, under direction of the Residency General, put forth efforts for encouraging its cultivation in that part of the peninsula by establishing at Mokpo a temporary station for the experimental cultivation of American cotton. After annexation, in order to promote its cultivation by Korean farmers still more widely, guilds of cultivators of cotton were caused to be formed, farmers showing themselves specially zealous in the cultivation of upland cotton were publicly rewarded by the presentation of agricultural implements, and the produce of places having difficulty in disposing of it was made salable by the cultivators being given subsidies toward the cost of transportation. In these ways the cultivation of upland cotton was most vigorously encouraged with a very satisfactory result.

Thus whereas in the year when annexation was carried out the area of land devoted to the cultivation of upland cotton was about 1,000 cho and its cultivators numbered less than 20,000, in 1912 the area increased to about 6,500 cho and cultivators to 77,000, while in 1913 the area reached 14,000 cho (1 square cho 2.45 acres). As to the amount of cotton exported to Japan, while it was only about 250,000-odd yen in 1910, it increased to 920,000-odd yen in 1913.

Encouragement Given to Sericulture

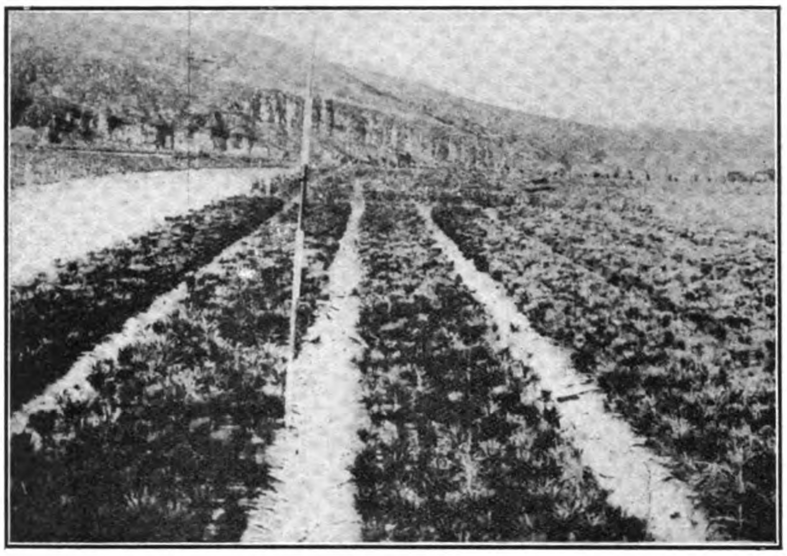
Like other branches of the agricultural industry, sericulture was also formerly in a very undeveloped condition. Silk cocoons produced in Chosen were inferior in quality and diverse in variety. Mulberry leaves used were also very inferior in quality, and mulberry orchards were limited in area. In short, the condition of the sericulture industry in the peninsula was anything but satisfactory. In order to raise it, therefore, measures were first taken to cause the model agricultural station and provincial nurseries to rear and distribute among Koreans seedlings of the best varieties of mulberry trees imported from Japan. Subsidies were also granted to people forming mulberry orchards, so that the cultivation of these seedlings might be encouraged and the area of mulberry orchards enlarged.

Koreans soon found that leaves of Japanese mulberry trees were superior in every respect when compared with those of Korean trees, and the number of people cultivating them steadily increased. In 1912 the total area of orchards planted with Japanese mulberry trees reached about 1,600 cho throughout the peninsula.

The model agricultural station was charged with the task of selecting species best suited to the climate of Chosen. The result was that five varieties were selected and eggs obtained from these five varieties of silk worms by the model agricultural station were distributed.

As silkworms hatched from these eggs were found to be very strong in resisting diseases and their cocoons were excellent in quality, the hatching of silkworms from eggs of the improved species rapidly became general, and the demand for cocoons spun by them also greatly increased, while the price quoted was three times that given for cocoons of native species. As people in general outside agricultural people can engage in the sericulture industry with comparative ease, along with the encouragement given by the Government, those undertaking it remarkably increased in number, and the total crop obtained in 1913, including spring, summer, and autumn breeds, amounted to as much as 35,400-odd koku, whereas that obtained in 1909, the year preceding annexation, amounted to only 11,900-odd koku.

Cattle are indispensable to the agricultural industry in Chosen and occupy a prominent position in the list of items of the export trade of the country. Great attention was paid to the improvement and increase of the breed. Further, in all local centers, people were induced to organize cattle guilds



SEEDLING STATION, SHINSHU, SOUTH KEISHO PROVINCE

LOCAL OFFICIALS PLANTING TREES ON ARBOR DAY

among themselves, and experts were appointed to teach them the method of increasing their stock. The slaughter of cows in calf was restricted. By means of these measures, without depending on foreign breeds, the improvement and increase of the native breeds best adapted to the soil and climate of Chosen were undertaken, and the result obtained was very satisfactory. Thus, whereas the total number of cattle in Chosen was 628,000 in 1909, and 703,000 in 1910, the year of annexation, it increased to 906,000 in 1911 and to 1,040,000 in 1912. Now, Korean cattle being in great demand at Vladivostok and in other parts of Siberia, as well as in Japan, there is little doubt that they will become one of the most important products of Chosen.

Afforestation Systematically Undertaken

The encou.agement of afforestation is what is most closely connected with the improvement of the agricultural industry. In Chosen, in consequence of the ruthless felling of trees and the denudation of mountains, floods or drought frequently occur, and not only the agricultural industry but roads and railways suffer much damage. In order, therefore, to eradicate the evil the authorities early undertook to encourage afforestation among the people. In 1908 the residency general caused the Korean Government to provide regulations for the administration of forests in general, as well as for the management of State-owned forests, and thus fixed a general policy with regard to afforestation work in this peninsula. After annexation, in 1911, in order to complete the adjustment of forests and foster in the minds of the people at large the love of forests, the old regulations were abolished and new forestry regulations and some minor regulations relating thereto were promulgated.

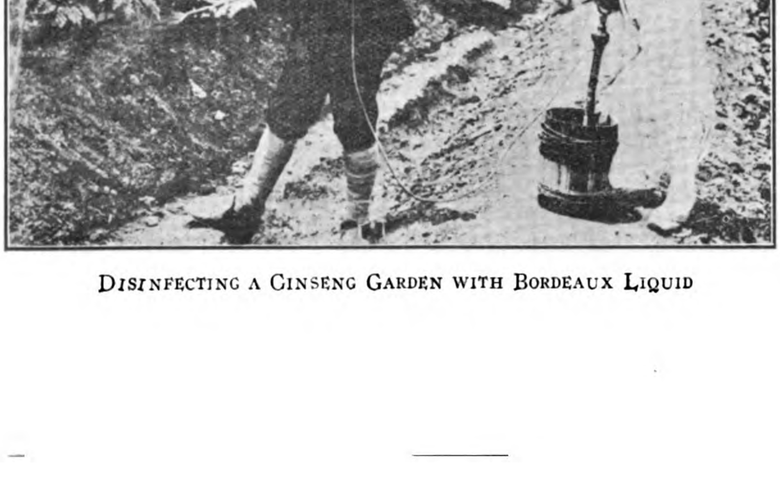
At the same time strenuous efforts were put forth to encourage afforestation work.

First of all, after due investigation of State-owned forests, those most needing protection were selected and their areas fixed, special offices for supervising them being created.

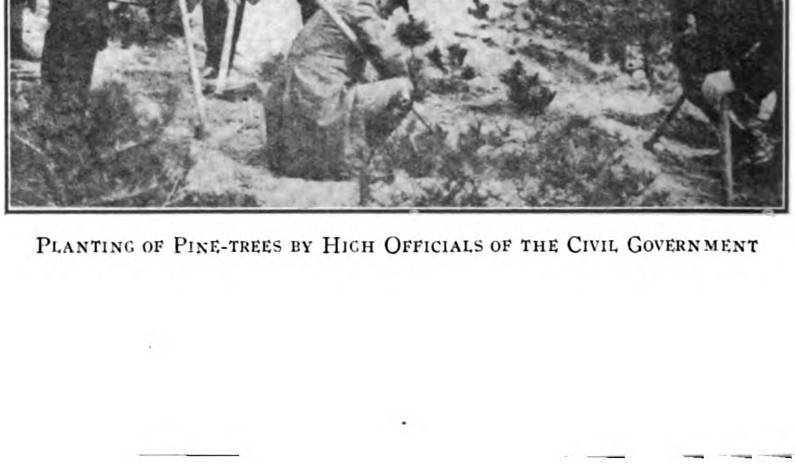
As for those State-owned forests the retention of which as such was considered unnecessary, it was arranged that these should be leased to private persons undertaking afforestation, and that should they succeed in their work they should be transferred to their possession.

In July, 1913, there existed throughout Chosen 319 nurseries, including one maintained at State expense, 270 maintained by local revenue, and 48 maintained by proceeds from the imperial donation fund. In these nurseries seedlings of pines, acacia, chestnut, poplar, and a few other trees were reared and distributed free. There are also not a few similar institutions established and managed by private persons and companies, and these contribute in no small degree to the spread of afforestation work.

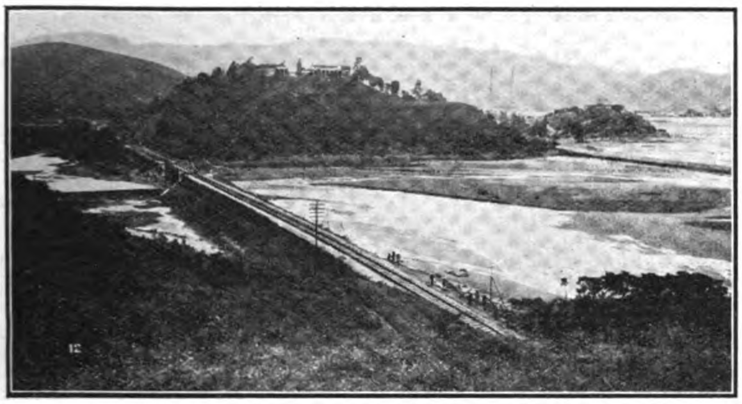
In 1911 Arbor Day was established in Chosen, April 3, a great national holiday, being fixed upon, and 4,650,000 young trees were planted on that day by officials and private persons throughout Chosen. In 1912 there were 10,160,000 young trees planted and 12,430,000 in 1913. The steady increases in figures will show how people in general are becoming cognizant of the benefit of afforestation.



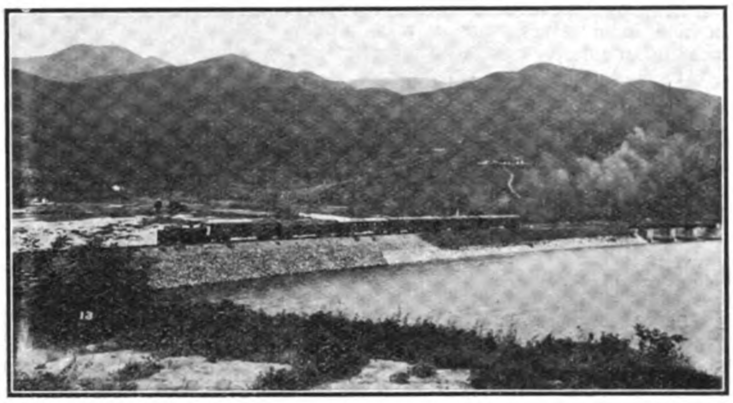
DISINFECTING A GINSENG GARDEN WITH BORDEAUX LIQUID



PLANTING OF PINE-TREES BY HIGH OFFICIALS OF THE CIVIL GOVERNMENT



CANTON-KOWLOON RAILWAY—CROSSING TIDE FLATS



CANTON-KOWLOON RAILWAY—EMBANKMENT APPROACH TO BRIDGE

KOWLOON-CANTON RAILWAY (British Section).

[ANNUAL REPORT FOR 1914 OF H. P. WINSLOW, MANAGER]

The foundations for the new Terminal Station at Kowloon were completed at the end of 1913 and in February of the year under review a contract was let for the Station Building. Satisfactory progress has been made by the Contractor, the building having approximately reached the first floor level. Orders for the necessary fittings and fixtures have been placed with the Crown Agents and it is anticipated that the Station will be opened for the use of the public by March, 1916.

Since the opening of the Railway, great inconvenience and no little anxiety has been experienced at Hung Hom where the connection to the shunting and loco yards joined the main line to the south of an overbridge approached by a sharp curve. This awkward arrangement has been changed during the year by the laying of a second line of rails between Kowloon and Hung Hom, thus relieving the main line between Kowloon and Yaumati of all junctions and crossings.

A starting signal interlocked with the movement of the points has been erected at Lowu, giving line clear to trains from the Chinese Section to the British Section main line.

The Platforms of the new Terminal Station were opened for traffic in April after receipt of the points and crossings from England, the track removed from Salisbury Road and the portion formerly used by the Railway handed back to the Public Works Department.

The Station Yard for the present consists of 12 roads converging onto 2 lines, one being the through or main line to Yaumati, and the second, the "empty" line to Hung Hom and the loco yard. These are temporarily controlled by a complicated system of point locks but an order has been placed through the Crown Agents for a proper system of signalling which will be operated from one signal cabin containing 72 levers, room for 8 additional levers being provided for future extension. The level crossing gates at Holt's Wharf will also be controlled by this cabin.

As pointed out in my Report of 1913 the embankments between mile 7½ and 14 were seriously damaged during the Typhoon of August 17th and it was decided that protection works of a more substantial nature were necessary along the coast line to avoid the risks of washouts. Good progress has been made since the work commenced in November and it is anticipated that before the next typhoon season arrives the necessary repairs will be practically completed.

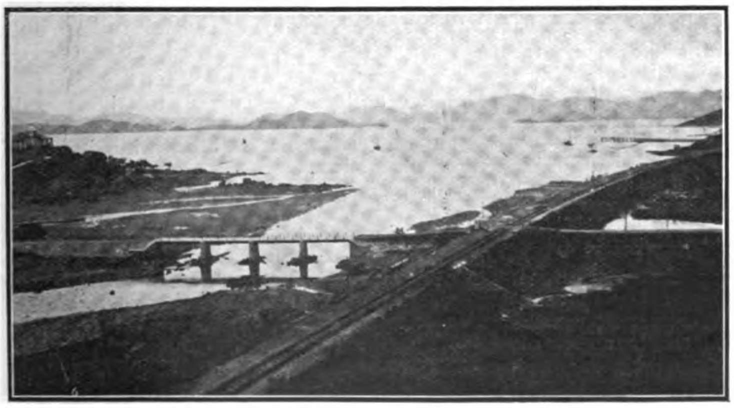
Owing to the continual rise in house rents causing the Railway staff to be frequently seeking more reasonable accommodation and changing their residences, some even being forced to live on the island of Hongkong, sanction was obtained to erect blocks of quarters on Railway lands at Hung Hom for most of the European staff. Drawings and estimates were prepared during the year and contracts for the buildings have since been entered into and the work started.

The general development of the Traffic on the Railway necessitating orders for additional locomotives and rolling stock made the extension of the locomotive and carriage accommodation at Hung Hom a necessity. The matter was given careful consideration and when it was found that the present site was capable of expansion sufficient to serve for very many years to come, a definite scheme was drawn up, and it was arranged to carry out only so much of it as was immediately necessary. These extensions include the removal of the old store and the building of a new one, which work was well in hand by the end of the year and has since been completed, the extension of the present paint shop as a locomotive running shed, the conversion of the present carriage running shed into a paint shop, and the building of a new carriage running shed capable of accommodating 2 trains of 8 coaches each, also the rearrangement of the tracks in the loco yard so as to come in with the new works and the scheme decided upon. An order for the necessary points and crossings and permanent way has been placed through the Crown Agents during the year.

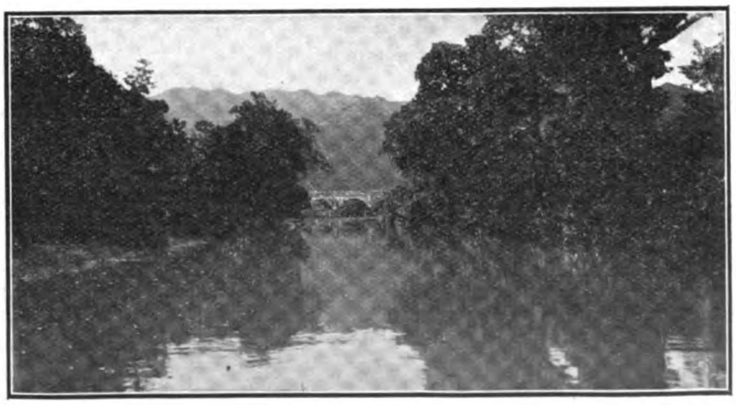
On January 29th the crank axle of No. 2 locomotive broke when approaching Fanling station, fortunately without causing other damage. A new crank axle was supplied by the Hongkong and Whampoa Dock Company and the locomotive was again in service on March 16th since which time it has been working satisfactorily. Whilst waiting for the new crank axle the engine was given a general overhaul and repainted. This is the only accident of consequence to rolling stock during the year.

The locomotive ordered in 1913 arrived in the Colony in May and was erected and handed over to the traffic at the end of June. This engine has been fitted with mechanical lubricators to the cylinders and valve chests which have been found to be a great improvement. A Pyle electric head lamp has been fitted during the year to the locomotive used for night work.

One 30 ton wagon has been converted into a flat bogie. Eight Main Line coaches have been given a general overhaul and repainted and the erection of eight new coaches on underframes received at the end of the year has been commenced. Further orders were placed during



CANTON-KOWLOON RAILWAY—APPROACH TO KOWLOON



CANTON-KOWLOON RAILWAY—SCENE ALONG ROUTE

the year through the Crown Agents for three Main Line locomotives, four carriage underframes and one motor coach.

Fanling Branch Line.

Washouts occurred on the Fanling Branch Line in July and September, one owing to the bursting of village bunds which damaged some 800 feet of Railway bank and another caused by a sudden mountain freshet washing away the wings and approaches of a bridge over a stream. About ¾ of a mile of second hand 35 lb. rails have been purchased in order to release some 85 lb. rails which were temporarily laid in the road and were required at Kowloon, and many new intermediate sleepers were laid and bridges strengthened in order to carry the heavier class of rolling stock placed on the line during the year.

In December, 1913, six underframes were received for the Fanling Branch Line and on these underframes the following coaches have been erected:—One first class, one first and brake compo, one third and brake compo, and three thirds. The work was started in January and the coaches completed in March. The old coaches were condemned, some were sold and the underframes of others have been used to make steel sided wagons.

In April the 2 foot gauge No. 2 Hudswell Clarke loco was brought into the shops from Fanling and rebuilt. The frame of this locomotive has been lengthened by 1 foot 3 inches, a covered cab fitted in place of an open one and the couplings altered to the pattern of the new rolling stock on the narrow gauge branch line.

A revision of the Time Table was made early in the year and a night train service between Hongkong and Canton was inaugurated in March. This night service was continued until August 16th when the train was derailed at mile 19 on the Chinese Section by a gang of robbers removing two rails and attacking the train. After this incident it was decided to discontinue the night service. The day service has been maintained throughout the year with the exception of the period between July 11th and 24th when the through trains to Canton were suspended owing to floods which seriously damaged the line between Shek Lung and the former City.

Accounts.

The Expenditure to December 31st, 1913, on Capital Account was for the Main Line $13,459,227.43 and the Branch Line $62,004.13 making a total of $13,521,231.56. During the year under report further expenditure was incurred on works detailed in this Report amounting to $546,602.44 for the Main Line, which includes a debit for loss on Exchange of $194,847.04, and $27,826.69 on the Fanling Branch Line making a total of $574,429.13 for the year.

The Revenue Statements of Earnings and Expenditure take the usual form. The net result shows that against an Estimate of $271,209, the actual Expenditure was $274,366.39 an excess of $3,157.39 mainly due to an unexpected rise in the price of coal which could not have been foreseen at the time the Estimates were framed, and to increased train mileage. The Earnings were estimated to be $372,600 whilst the actual receipts amounted to $364,608.32 being $7,991.68 below the Estimate. It was only to be expected that the war would affect the passenger traffic, and this together with the unfortunate attack on the night train mentioned above no doubt had an adverse effect and in addition the train service to and from Canton was suspended for 14 days owing to floods. Though the Earnings did not quite reach the estimated figures, the local traffic has increased slightly and shows an excess of $2,174.94 over the previous year despite the fact that the customary movements of the troops in the autumn did not take place. The through traffic shows a satisfactory increase under the circumstances of $28,222.02. I regret that I am unable to report any considerable improvement in the Goods Traffic. A slight increase is shown in both Through and Local Goods, but though efforts have been made in all directions and enquiries have been received, for the reasons already stated in my Report for 1913, the receipts from this source have made no satisfactory progress.

The Working Expenses for the year are slightly higher than in 1913. It will be observed on reference to the figures that the Locomotive expenses are mainly responsible for this, the percentage under Abstracts B & C being 35.61 as against 30.39 for 1913, this as previously explained is mainly due to an unexpected advance of $1.85 per ton in the price of coal and to a smaller extent to additional mileage due to an improved Time Table.

The Gross Earnings for the year were $364,608.32 as against $333,633.32 for 1913 an increase of $30,975. The Working Expenses amounted to $274,366.39 an increase of $28,557.81 due as stated above to the increase in the price of coal. The balance after paying Working Expenses stands at $90,241.93 or $2,417.19 more than the previous year.

During the year the question of the division of the fares has continued to receive the attention of both Administrations and in August a decision was arrived at and the outstanding accounts between the two Sections, it is hoped, will be finally adjusted early in the ensuing year.

Accidents.

No accidents occurred to the travelling Public or to Railway servants during the year, but four Chinese were killed whilst trespassing on the Railway.

Staff.

During my absence on leave from April 8th to November 19th Mr. Robert Baker (Engineer of Way and Works) acted as Manager. Mr. G. A. Walker, Chief Storekeeper, was granted nine months' leave and returned to duty on November 19th.

CONSTRUCTION ACCOUNT—MAIN LINE

I.	II.	III.	IV.	V.	VI.	VII.
Main-Head.	Sub-Head.	ESTIMATES. 1913.	Additions 1914.	Total.	Expenditure to 31st December, 1914.	Funds Available.
		$ c.	$ c.	$ c.	$ c.	$ c.
I.—Preliminary Expenditure,.....	Survey,............	42,277.65	—	42,277.65	42,277.65	—
II.—Land,......	Land,...............	2,669,758.45	4,801.57	2,674,560.02	2,254,880.13	419,679.89
III.—Formation, ...	(a) Earthwork,	2,587,580.00	168,551.73	2,756,131.73	2,596,526.54	159,605.19
	(b) Tunnels, ...	3,811,145.19	—	3,811,145.19	3,819,945 51	*8,800.32*
	(c) Roads,........	120,200.00	5,787.66	125,987.66	126,672.02	*684.36*
IV.—Bridges,..	(a) Major,........	816,495.41	—	816,495.41	829,047.22	*12,551.81*
	(b) Minor,........	350,126.47	—	350,126.47	359,491.49	*9,365.02*
	(c) Culverts,.....	72,546.09	—	72,546.09	71,567.78	978 31
V.—Fencing,..	(a) Boundaries,.	39,999.45	8,493.22	48,492.67	44,486.33	4.006.34
	(b) Signs,........	400.00	—	400.00	727.31	*327.31*
VI.—Telegraph,	Telegraph,.......	30,032.17	2,565.33	32,597.50	40,551.65	*7,954.15*
VII.—Track,.....	(a) Ballast,.......	130,066.54	3,000.00	133,066.54	175,630.99	*42,564.45*
	(b) Permanent Way,........	702,885.71	16,000.00	718,885.71	812,742.46	*93,856.75*
VIII.—Stations & Buildings,	(a) Buildings & Fixtures,.....	308,800.00	411,000.00	719,800.00	314,107.05	405,692.95
	(b) Station Machinery,......	40,000.00	28,280.00	68,280.00	36,145.36	32,134.64
	(c) Furniture,...	5,000.00	—	5,000.00	15,241.93	*10,241.93*
	(d) Workshops,	60,000.00	—	60,000.00	89,899.74	*29,899.74*
IX.—Plant,.....	(a) Construction,	101,884.53	—	101,884.53	167,336.84	*65,452.31*
	(b) Loco, Tools and Plant,...	50,000.00	—	50,000.00	68,775.91	*18,775.91*
	(c) C. & W. Tools and Plant,...	10,000.00	—	10,000.00	25.00	9,975.00
	(d) Engineering,	—	—	—	10.00	*10.00*
	(e) Loco Rolling Stock,.........	119,400.00	243,706.30	363,106.30	251,561.05	111,545.25
	(f) C. & W. Rolling Stock,...	302,540.00	217,541.20	520,081.20	426,424.39	93,656.81
X.—General Charges,.	(a) 1. Salaries and Allowances,	398,720.43	—	398,720.43	442,971.18	*44,250.75*
	2. Quarters and Offices, ...	88,495.13	—	88,495.13	113,457.39	*24,962.26*
	3. Instruments,	11,639.61	—	11,639.61	10,339.91	1,299.70
	4. Office Expenses,......	32,710.93	—	32,710.93	34,770.08	*2,060.05*
	5. Medical,....	22,319.46	—	22,319.46	23,071.90	752.44
	6. Home Charges,.........	124,478.29	—	124,478.29	134,978.80	*10,500.51*
	7. Interest, ...	713,922.67	—	713,922.67	701,705.62	12,217.05
	8. Exchange,	200,000.00	—	200,000.00	*282,257.14*	482,257.14
	(b) Accounts,...	42,843.53	—	42,843.53	41,222.35	1,621.18
S.S.,...............	Stores in Suspense,.......	—	—	—	241,494.53	*241,494.53*
	$	14,006,267.71	1,109,727.01	15,115,994.72	14,005,829.87	1,110,164.85

N.B.—Figures printed in italics are minus quantities.

Column IV.—Additional work, rolling stock, etc., sanctioned; expenditure approved in Dec., 1914.

CANTON—KOWLOON RAILWAY. REVENUE ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1914.

1913	Per cent. on Gross Receipts.	Expenditure	Amount 1914	Per cent. on Gross Receipts.
$ c.	%	*Main Line.*	$ c.	%
52,218.60	15.65	To Maintenance of Way and Works,	42,857.71	11.75
101,375.22	30.39	„ Loco, Carriage and Wagon Expenses, ...	129,861.27	35.61
39,550.99	11.86	„ Traffic Expenses, ...	46,234.00	12.68
41,534.58	12.45	„ General Charges, ...	40,422.17	11.09
42.90	.01	„ Special and Miscellaneous Expenditure, ...	...	...
		Branch Line.		
4,816.16	1.44	To Maintenance of Way and Works,	6,369.43	1.75
5,087.26	1.53	„ Loco, Carriage and Wagon Expenses,...	7,394.28	2.03
1,167.87	.35	„ Traffic Expenses	1,227.53	.34
...	...	„ General Charges	...	...
15.00	...	„ Special & Miscellaneous Expenditure, ...	...	...
245,808.58	73.68		274,366.39	75.25
87,824.74	26.32	„ Balance (Net Earnings)	90,241.93	24.75
333,633.32	100.00		$364,608.32	100.00

1913	Earnings	Amount 1914	Total.
$ c.	*Local.*	$ c.	$ c.
107,768.69	By Coaching Traffic	108,398.58	
8,692.86	„ Goods „	10,121.25	
12,744.93	„ Sundry „	12,861.59	131,381.42
129,206.48			
	Foreign.		
187,928.68	By Coaching Traffic	215,045.63	
9,585.91	„ Goods „	10,690.98	
...	„ Sundry „		225,736.61
197,514.59			
	Branch Line.		
6,444.10	By Coaching Traffic	7,018.14	
468.15	„ Goods „	472.15	
...	„ Sundry „	...	7,490.29
6,912.25			
333,633.32			$ 364,608.32

J. MORRIS,
Chief Accountant.

Kowloon, April 14th, 1915.

H. P. WINSLOW,
Manager.

EXPENDITURES. CANTON—KOWLOON RAILWAY

		Expenditure to 31st December, 1913.	Net Expenditure during 1914.	Expenditure to 31st December, 1914.
		$ c.	$ c.	$ c.
Preliminary Expenditure,	Survey, ...	42,277.65	......	42,277.65
Land, ...	Land, ...	2,250,222.28	4,657.85	2,254,880.13
Formation,...	(a) Earthwork, ...	2,568,171.92	28,354.62	2,596,526.54
	(b) Tunnels, ...	3,806,982.63	12,962.88	3,819,945.51
	(c) Roads, ...	120,884.36	5,787.66	126,672.02
Bridges, ...	(a) Major, ...	829,047.22	......	829,047.22
	(b) Minor, ...	359,491.49	......	359,491.49
	(c) Culverts, ...	71,567.78	......	71,567.78
Fencing	(a) Boundaries, ...	36,993.11	7,493.22	44,486.33
	(b) Signs,...	640.31	87.00	727.31
Telegraph,...	Telegraph,...	37,767.34	2,784.31	40,551.65
	(a) Ballast, ...	164,399.50	11,231.49	175,630.99
	(b) Permanent Way, ...	786,792.16	25,950.30	812,742.46
Stations and Buildings,...	(a) Buildings and Fixtures,	240,360.17	73,746.88	314,107.05
	(b) Station Machinery,	32,994.95	3,150.41	36,145.39
	(c) Furniture,...	15,099.13	142.80	15,241.93
	(d) Workshops, ...	88,713.39	1,186.35	89,899.74
Plant, ...	(a) Construction, ...	175,615.45	*8,278 61*	167,336.84
	(b) Loco, Tools, and Plant,	68,775.91	......	68,775.91
	(c) C. & W. Tools and Plant,	25.00	......	25.00
	(a) Engineering, ...	10.00	......	10.00
	(e) Loco Rolling Stock,...	194.261.75	57,299.30	251,561.05
	(f) C. & W. Rolling Stock,	398,120.38	28,304.01	426,424.39
General Charges, ...	(a) 1. Salaries and Allowances,...	441,035.17	1,936.01	442,971.18
	2. Quarters and Offices, ...	113,520.11	*62.72*	113,457.36
	3. Instruments, ...	10,449.91	*110.10*	10,339.91
	4. Office Expenses,	34,131.91	639.07	34,770.98
	5. Medical, ...	23,071.90	.....	23,071.90
	6. Home Charges, ...	134,978.80	......	134,978.80
	7. Interest, ...	701,705.62	......	701,705.62
	8. Exchange, ...	*477,104.18*	194,847.04	*282,257.14*
	(b) Accounts,...	41,222.35	......	41,222.35
	Stores in Suspense,	147,001.96	94,492.57	241.494.53
	Total, ...	$13,459,227.43	$546,602.44	$14,005,829 87

N.B.—Figures printed in italics are minus quantities.

STATEMENT OF TRAIN MILEAGE

Main Line.

Year ending 31st December, 1913.	Particulars.	Year ending 31st December, 1914.
Miles.		*Miles.*
111,857½	1.—Train miles run for Public Traffic	138,966
6,528½	2.—Train miles run for Maintenance,............	4,539
118,386	Total Train Mileage,...	143,505
75,882	3.—Miles of engines shunting and standing in steam for traffic purposes at 6 miles an hour,..................	106,590
......	4.—Miles run for Loco purposes, ...	750
194,268	Total, ...	250,845

Fanling Branch.

Year ending 31st December, 1913.	Particulars.	Year ending 31st December, 1914.
Miles.		*Miles.*
23,021	1.—Train miles run for Public Traffic, ...	20,064
10,950	2.—Miles of engines shunting and standing in steam for traffic purposes at 6 miles an hour, ...	10,950
33,971	Total.........	31,014

ROLLING STOCK FOR THE YEAR ENDING 31st DECEMBER, 1914.

LOCOMOTIVE

Tender or Tank.	Type.	No.	Cylinder.	Pressure per sq. in.	Tractive Force.	Total Weight in Working Order.		Total Stock 1913.	Additions 1914.	Reductions 1914.	Total at end.	Actual Stock in running order on the last day of the year.	Repairs and Renewals. Repaired in 1914.	Renewed in 1914.	Undergoing or awaiting Repairs at end 1914.	Average Number undergoing Repairs or Renewals at any one time.
					lbs.	Tons.	cwt.									
	Kitson															
Side Tank	2: 6: 4: 4′ 8½″ Gauge.	5	19″ × 26″	180	24,724	89	15	4	1	0	5	5	4	0	2	1
	Hudswell Clarke															
Saddle Tank	0: 6: 0: 4′ 8½″ Gauge.	2	14″ × 20″	150	10,604	29	7	2	0	0	2	2	2	0	0	1
	Hudswell Clarke															
Side Tank	0: 4: 0: 2′ 0″ Gauge.	2	6″ × 10″	150	1,800	5	3	2	0	0	2	2	2	0	0	1
	Orenstein Koppel															
Centre Tank	0: 4: 0: 2′ 0″ Gauge.	1	9¾″ × 11¾″	150	4,338	10	0	1	0	0	1	1	1	0	0	0
	Wilson & Co.															
Loco Crane	0: 4: 0: 4′ 8½″ Gauge.	1	8″ × 10″	80	...	15	0	1	0	0	1	1	1	0	0	1
Total		11						10	1	0	11	11	10	0	2	4

COACHING VEHICLES. 4′ 8½″ Gauge.	No.	Length in feet.	Tare.	Capacity; Passenger.	Total Stock 1913.	Additions 1914.	Reductions 1914.	Total 1914.	Actual Stock in running order on the last day of the year.	Repairs and Renewals. Repaired in 1914.	Renewed in 1914.	Undergoing or awaiting Repairs at end of 1914.	Average Number undergoing Repairs or Renewals at any one time.
			Tons.										
First Class Carriage	1	60′ 11″	36	50	1	...	...	1	1	1	...	...	1
Second Class Carriage	1	60′ 11″	34	84	1	...	...	1	1	1	...	...	1
First and Second Composite Carriage	2	60′ 11″	35	68	2	...	...	2	2	2	...	...	2
First and Second Composite and Buffet Carriage	1	60′ 11″	35	60	1	...	...	1	1	1	...	...	1
Third Class Carriage	8	60′ 11″	32	120	8	...	...	8	8	8	...	...	1
Third Luggage and Brake	2	60′ 11″	35	84	2	...	...	2	2	2	...	...	2
Kitchen Luggage and Brake	1	60′ 11″	35	...	1	...	...	1	1	1	...	...	1
Total	16	...	...	...	16	...	...	16	16	16	...	...	9

2′ 0″ Gauge. COACHING VEHICLES	No.	Length in feet.	Tare.	Capacity; Passenger.	Total Stock 1913.	Additions 1914.	Reductions 1914.	Total 1914.	Actual Stock in running order on the last day of the year.	Repaired in 1914.	Renewed in 1914.	Undergoing or awaiting Repairs at end of 1914.	Average Number undergoing Repairs or Renewals at any one time.
			Tons.										
8 Wheeled Bogie First Class Carriage	1	24′ 0″	3.5.0	16	...	1	...	1	1	1	...	...	1
,, ,, ,, ,, ,, and Brake Compo ...	1	24′ 0″	3.5.0	10	...	1	...	1	1	1	...	...	1
,, ,, ,, Third ,, ,, ...	1	24′ 0″	3.5.0	12	...	1	...	1	1	1	...	...	1
,, ,, ,, ,, ,, Carriage	3	24′ 0″	3.5.0	24	...	3	...	3	3	3	...	...	1
			Cwt.	Cub. Feet.									
Open Sided Carriages	...	9′ 0″	11	10	6	...	6	...	...	...	...	...	...
Total, ...	6	...	...	...	6	6	6	6	6	6	...	...	4

GOODS VEHICLES. 4′ 8″ Gauge.	No.	Length in feet.	Tare.		Carrying Capacity (Tons)	Total 1913.	Additions 1914.	Reductions 1914.	Total Stock end 1914.	Actual Stock in running order end 1914.	Repairs and Renewals. Number Repaired 1914.	Number Renewed 1914.	Number undergoing or awaiting Repairs on the last day of the year.	Average number undergoing Repairs or Renewals at any one time,
30-Ton Covered Goods	5	35	15	5	30	5	...	...	5	5	5	...	...	1
30-Ton Rail Bogie	2	35	13	8	30	1	1	...	2	2	2	...	...	1
*30-Ton Open Goods	5	35	14	8	30	6	...	1	5	5	5	...	...	1
15-Ton Covered Goods	24	19	8	10	15	24	...	...	24	24	24	...	...	...
15-Ton Cattle Trucks	2	19	8	10	15	2	...	...	2	2	2	...	...	1
15-Ton Open Goods	10	19	7	16	15	10	...	...	10	10	10	...	...	2
15-Ton Goods Brake Van	2	19	15	...	15	2	...	...	2	2	2	...	...	2
Goods Vehicles 2′ 0″ Gauge.														
Steel Sided Goods Wagons	3	9′ 0″	...	12	60 Cub Feet	...	3	...	3	3	3	...	...	1
Wooden Goods Wagons	...	9′ 0″	...	10	...	6	...	6	...	...	...	...	...	...
Total, ...	53	...	...		...	56	4	7	53	53	53	...	...	9

*One 30-Ton Open Goods converted into Rail Bogie.

COACHING TRAFFIC CANTON-KOWLOON RAILWAY.

— Single Fare per mile	1st Class. About 8 cents.	Amount.	2nd Class. About 4 cents.	Amount.	3rd Class. About 2 cents.	Amount.	Total. 1914.	Amount.	Previous Year.
I.—Passenger.	No.	$ c.	No.	$ c.	No.	$ c.	No.	$ c.	$ c.
Ordinary, ...	1,420	1,846.84	8,030	5,309.06	317,168	74,622,31	326,618	81,778.21	83,131.41
Government,...	530	756.65	2,358	1,519.55	7,303	2,615.30	10,191	4,891.50	5,868.75
Monthly, ...	35	970.35	51	687.48	439	3,988.27	525	5,646.10	3.554.37
Excursion, ...	4,168	6,228.75	4,457	3,949.65	5,891	3,460.06	14,516	13,638.46	11,876.55
Excess Fares	199	158.85	546	185.10	9,671	1,858.30	10,416	2,202.25	2,218.20
Total, ...	6,352	9,961.44	15,442	11,650.84	340,472	86,544.24	362,266	108,156.52	$106,649.28
Previous Year,	7,375	10,763.44	12,597½	9,805.77	330,392	86,080.07	350,364½	106,649.28	

Luggage fees, etc....	4,603.44	3,750.92
	111,352.72	110,400.20
Deduct payment to Star Ferry on account of Ferry Service	2,954.14	2,631.51
Total,... ...	$108,398.58	$107,768.69
Next foreign Coaching Earnings	215,045.63	187,928.68
Total,... ...	$323,444.21	$295,697.37

GOODS TRAFFIC

Particulars.		Current Year.	Previous Year.
Local Earnings			
General Merchandise,... Piculs.	107,926.20	$ 8,985.38	$ 7,346.50
Government Stores,...... Piculs.	4,934.58	623.44	696.45
Live Stock,.................. Number	2,333	512.43	649.91
Total..................$		10,121.25	$ 8,692.86
Foreign Earnings		10,690.98	9,585.91
		$ 20,812.23	$18,278.77

(16.75 Piculs are taken as the equivalent of a ton.)

SUNDRIES

Particulars.	Current Year.	Previous Year.
Rents of Land, House, etc.,	$ 9,574.14	$ 8,820.47
Rents—Stall Holders and Money Changers at Stations,	215.00	296.50
Hire of Engines and Wagons (Maintenance),..................	2,325.04	2,918.91
Water Supply to Steam Launches,.........................	313.00	441.85
Proceeds by sale of Lost Luggage,.........................	9.25	3.00
Privilege of Loading & Unloading at Stations,....	264.00	264.00
Miscellaneous, ...	161.16	.20
Total,...............$	12,861.59	12,744.93

CANTON-HANKOW RAILWAY

Hupei-Hunan Section

Tenders are called for the supply of the following Steel Bridgework, viz:—

5	Dock Girders	15 — ft.	Span.
8	do	20 — ft.	,,
18	do	30 — ft.	,,
6	do	40 — ft.	,,
18	Through Trusses	150 — ft.	,,
9	do	200 — ft.	,,

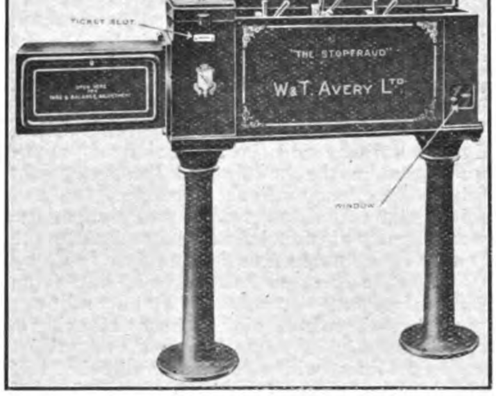
Forms of Tender, with Conditions of Contract and Specifications, can be obtained on payment of $5 at the office of the Director General, Han-Yueh-Chuan Railway Administration, Hankow, or on payment of an equivalent fee at the offices of the Railway's Consulting Engineers or Representatives in London, Paris, New York or Berlin.

Designs are to be submitted with each Tender, which must be on the official form supplied, in sealed covers marked "Tenders for Steel Bridgework, Canton-Hankow Railway, Hupei-Hunan Section," Addressed to the Director General, Han-Yueh-Chuan Railway Administration, Hankow, or, if abroad, to the Railway's approved Agents.

No Tenders will be received after 6 P.M. on the 7th December, 1915, when they will be opened in the presence of Tenderers or their Representatives —Adv.

Important Improvement in Weighing Apparatus.

When one considers that practically every merchant's business calculations depend absolutely upon weighing accuracy for their success, it is a matter for surprise that the plan now adopted by the majority of leading British business houses, railways and Government Departments is not universally followed. Recognising that inaccurate weighments must inevitably lead either to loss of trade or to direct loss of profits, the keen practical business man has learned the wisdom of placing all his weighing apparatus under the care of one or other of the leading weighing machine makers, who periodically test, and where necessary adjust and repair any type and make under an annual maintenance contract. The loss in overweight required to turn a "stiff" weighing machine, may be, in itself, trifling, but the sum of these overweights will amount to a serious loss in a year.



"Stop Loss" Weighing Machine.

Another grave danger is the carelessness and, occasionally, fraud on the part of employees.

The machine here illustrated is the latest designed by the well-known and leading makers of weighing, counting and testing apparatus, W. & T. Avery, Ltd., of Birmingham, and is a device which prevents either fraud or carelessness. The "Stopfraud" apparatus is designed to print the weights on a ticket, the important point being that the ticket can be printed only if the weighman has obtained perfect equilibrium of the steelyard. If a weighman does not remove surplus weight the evidence of his carelessness goes upon record. In cases of repetition weighments the poises can be set, the machine locked and any untrained employee told off to check out any number of packages; it being quite impossible for overweight bags or lots to be sent out, since no ticket can be printed for weights that are even a fraction in excess of the variation allowed in setting the machine.

The method of working is shown in the illustration of the open machine. When the hinged cover is open, the printing hand lever is locked, and the ticket slot closed. By moving the patent locking poises along a fixed bar the concealed poises are shifted until the steelyard is seen at the window to be in equilibrium. The hinged cover is then closed and only when perfect balance is obtained, can one release the printing hand lever, and open the ticket slot.

It is not claimed that every refinement of the "Stopfraud" machine is required by every merchant who uses a weighing system in his business, but that with its various attachments the "Stopfraud" offers many advantages heretofore unobtainable, and that to many merchants, one or other of these refinements may be so valuable that the machine deserves the immediate and earnest attention of all who rely upon weighing as a means of putting their theoretical calculations into practical effect. Scalemaking being quite a special branch of engineering, the value, efficiency and convenient distribution of the Avery Service fully merits the appreciation it receives and the success it has attained.

Change in Goulds Selling Organization

The Goulds Manufacturing Company of Seneca Falls, N.Y., manufacturers of pumps for every service, announces a change in the management of its Sales Organization. Instead of having the entire organization in charge of a single executive, the selling work has been divided and is now directed by Mr. R. E. Hall, former Manager of the Boston Office, and Mr. W. E. Dickey, former Manager of the New York Office, both of whom are Vice-Presidents of the Company. Mr. A. H. Whiteside, former Sales Manager has resigned.

Mr. Hall, who is now located at Seneca Falls, has charge of the general work of the department and in addition looks after the business in all the Northern, Central West and Northern Pacific States including the territories of the Boston, Seneca Falls and Chicago Offices. The Export business is also under Mr. Hall's supervision.

Yokohama Building Y. M. C. A.

The Yokohama Young Men's Christian Association has concluded a contract with the American Trading Company, Tokyo, for a new Y. M. C. A. Building in Yokohama. The site was purchased some time ago at Tokiwacho, just opposite the Yokohama park. The ground contains 181 tsubo, for which the Y. M. C. A. paid 15,000 yen. The cost of the new building will be 58,000 yen and American business men have already pledged 70,000 for the new building and ground and a pledge of 14,000 yen has been given by Japanese supporters. Since the building, ground, equipment and maintenance will cost 122,000 yen, at least another 40,000 yen will have to be raised in Japan by the association.

The new building will be a five story structure of concrete. The kitchen and dining room will be on the ground floor. Shower baths and lockers are also provided on the same floor. On the first floor will be the social hall, library, billiard and music rooms. There will also be a public hall, a meeting room for general meetings and a gymnasium on the second floor. The third floor will be used for educational purposes. On the fourth floor will be a dormitory. The work of construction will be completed in May next.

THE CHANGCHUN-KIRIN RAILWAY AND ITS STRATEGIC MEANING

It is now exactly ten years ago since the Chinese Government decided on the construction of the Changchun-Kirin Railway in order to facilitate communication between the Capital of Kirin province and the other principal towns of the then Chinese Empire. The line has only been open to traffic for some two years, so that roughly it has taken eight years to get into working order a railway only 80 miles in length. Such a thing is only possible in China where forces are at work which defeat every known system of calculation.

The History of the Line

The whole history of the Kirin Railway discloses a pitiable tale of hesitation heavily interwoven with political intrigue. Some ten years ago a Chinese engineer was sent to Kirin and was instructed to collect material for the eventual construction of the Railway. He at once set to work purchasing large quantities of timber which is both abundant and cheap in these parts, but all these materials were either lost or destroyed when the Japanese became masters of the South Manchuria Railway and occupied Changchun. As the Chinese Government were then very short of funds, they consented to enter into an agreement with the Japanese Government by which the latter agreed to lend the new Railway Company half of the necessary capital, the yearly interest being fixed at 5 per cent. In return China agreed that the chief engineer and chief accountant should be Japanese. The chief engineer chosen was Mr. Magario, formerly of the Government Railways of North China, who was well experienced in engineering matters and methods in the North.

The Chino-Japanese Agreement of 1909

Even after this loan had been made things did not move very quickly and there was a great deal of chopping and changing with the directors, all of whom did not show much energy in pushing on construction. When in September, 1909, a new Chino-Japanese agreement was concluded which had special reference to the Korean-Chinese Boundary, the line was still in course of construction. Nevertheless in this agreement the Japanese secured China's consent that the Changchun-Kirin Railway should eventually be extended to the southern boundary of the Yenchi or Chientao district, connecting at Hoi-yang with a Korean railway. This extension was to be effected on the same terms as had been agreed upon for the Changchun-Kirin Railway. Even now the present railway, though in thorough working order, cannot be said to be thoroughly completed. A projected tunnel through the Tung Mung Ling has still to be built, the delay being caused by the want of capital, whilst several new bridges are also necessary on account of the floods which yearly take place in these districts and continually disorganise the railway traffic.

The capital expenditure on the railway is in round figures 5 million dollars, the Japanese having contributed some 2 million 200 thousand Yen, which is practically half the amount. According to returns furnished me the line is now self-supporting, and if it were not necessary to make further outlays in capital expenditure for the purchase of rolling stock, ballasting and general improvements, which—owing to the lack of any liquid funds—necessitates the disbursing of the monthly receipts, a profit would be made even when putting aside the interest payable on the Japanese loan.

The Traffic of the Railway

The highest monthly returns are $120,000 (during December and January) and the lowest $70,000, goods returns accounting for 65 per cent to 70 per cent of the total. The monthly expenditure is about $60,000 for purely running expenses and not including any sum set aside for payment of interest. In round figures the total returns for 1914 were $900,000 and the total running expenses $700,000. The smallness in passenger returns—from 30 per cent to 35 per cent of the total amount—demonstrates clearly that the population living in these districts is but small and that there is much land still to be opened up. The principal goods exported are timber in the summer months; and grain, cereals and tobacco in the winter months. This year there is a big falling-off in the export of timber; as last year all timber merchants had heavy losses, many becoming ruined owing to the floods and the carrying away down stream of innumerable rafts, which became flotsam and jetsam, lost forever to their owners. This year these dealers in timber have been unable to send even a quarter of the woodmen they usually dispatch to the upper reaches of the Sungari to hew trees which are at once cut into logs and bound together, the rafts being floated down stream as far as Kirin, where the Railway Co. has built a special siding close to the River bank to load this valuable cargo. Notwithstanding the small returns that are now shown by the Changchun-Kirin Railway, it is not a difficult matter to predict a very successful future for this line especially when the line becomes extended to the rich Yenchi district which lies some 800 li to east of Kirin and some 2 degrees south in latitude.

Possibilities of the Railway

Nobody knows better the possibilities of the railway and its extension than the Japanese themselves, for there have been for years past innumerable Japanese agents studying all conditions existent in this rich and fertile country and visiting even the most remote districts. It is interesting to follow step by step the deliberate manner of action of the Japanese, and it is not difficult to perceive that the object they have in view was born many years back and that each step taken has been caused by an opportunity presenting itself. Their first *pas* was to secure a share of the building of the Kirin-Changchun Railway and dates back soon after the signing of the Portsmouth Treaty. The second opportunity occurred in 1909 when the famous Chientao Controversy took place and when Japan acquired the substance for what she was fighting, although China gained a nominal diplomatic victory as a result of the Chino-Japanese Agreement that was signed stipulating for the extension of the Kirin-Changchun Railway to the southern boundary of Yenchi district and its connexion at Hoi-yang with a Korean Railway and the admission of Japanese capital in the building of the extension. When these negotiations were going on and before the actual agreement was signed, the then Viceroy of Manchuria telegraphed to the Peking Government pointing out that if China consented to the construction of a line from Kirin to Hoiyang—no matter what the conditions might be—the whole of Southern Manchuria would speedily be enmeshed in a network of Japanese lines whilst China would be left without any room for the construction of railways on her own account.

Russian Criticism

Russian special correspondents in the East for the more important Petograd and Moscow newspapers did not overlook the importance of the agreement that had then just been signed; they pointed out in very forcible terms that the construction of these railway lines gave a final preponderance to Japan over Russia in a strategical sense, which would enable Japan to pour an army through Northern Korea and Manchuria into the Ussuri district in a very few days, besides diverting freight from the Chinese Eastern Railway and Vladivostock to this parallel but more southern line terminating at the port of Chongjin in northeast Korea. The report made by the Vladivostock Bourse Committee to the Russian Government when this agreement of 1909 became a *fait accompli* was likewise a lengthy and remarkable document. It pointed out, without any mincing of words, that when once the projected line from northeast Korea, through the rich Yenchi district which lies adjacent to the Russian frontier to Kirin became an accomplished fact, the whole of the territory in the direct neighbourhood of this new Railway would fall *in toto* under the influence of Japanese enterprise. The third step taken in connexion with this railway coincides with the new Chino-Japanese Agreement in May last, when it was agreed that the Chinese Government would make a fundamental revision of the Kirin-Changchun Railway Loan Agreements, taking as a standard the provisions in railway loan agreements between China and foreign financiers and "when in future more advantageous terms than those in existing loan agreements are granted to foreign financiers in connexion with railway loans; the above agreement shall again be revised in accordance with Japan's wishes."

The Japanese Coup and Publicity

Though the demands accorded to the Japanese are much more moderate than the full text of Japan's ultimatum to China as officially announced by the Tokio Foreign Office on the 7th May and which read as follows, "The control and management of the Kirin-Changchun Railway shall be transferred to Japan for 99 years," nevertheless Japan has driven her wedge still further in as far as Central Manchuria is concerned, and no doubt would have driven it still deeper in had not the Chinese Authorities had recourse to the powerful medium of the Press. In the past and notably in the Antung-Mukden Railway Question, Chinese officials have shown their reluctance to appeal to the world in general through the Press, whilst on the other hand Japan, who invariably shows finesse in presenting her side of the case, has been able to drum up a fairly strong feeling in her favour in both England and America. China can only blame herself for having maintained silence, and as the experience has been dearly paid for let us hope that she has finally learnt her lesson.

"Reforms" in the Railway

The "reforms" that are to be introduced on the Changchun-Kirin Railway are likely to take place at a very early date, as the Treaty relating to South Manchuria came into operation on the 25th August. It is expected that, though the Chinese Director will still retain his place, the heads of departments will be replaced by Japanese and that these will be drawn from the present staff of the South Manchuria Railway; the present Traffic Manager, Locomotive Superintendent, Stores Superintendent being among those who will leave. Under the plea of effecting economy the present T'ou Ta Kon station, that is quite near the South Manchuria Terminus in Changchun, will be done away with and all trains will run into the South Manchuria Railway main line platforms. This being the case, the actual terminus of the Changchun-Kirin Railway will be transferred from the present principal Changchun station, which lies outside the East Gate of the native city, to the Japanese station at Changchun.

With the appointment of a Japanese Stores Superintendent, as is the case on the South Manchuria Railway, Japanese will receive preference when railway material and stores are required by the railway. A revision is also likely to be made in the present Railway Tariff and no doubt this Tariff will be drawn up from the S. M. R. model. The present Japanese Engineer-in-chief, Mr. Magario, is likely to be replaced by another Japanese engineer from the South Manchuria Railway, for the acting Director of the Bureau of Technics of that Co., Mr. Hori, has on several occasions shown himself not in accord with the work accomplished by Mr. Magario and has expressed his views through the medium of the Dairen Press as well as the Railway Organ published in the English language (the *Manchuria Daily News*), on the necessity of reconstructing all bridges along the Changchun-Kirin line. Both the Japanese in charge of the active management of the line will therefore be changed and it may be fully expected that construction work on the extension to Yenchi and the Korean frontier will soon begin, the line having been surveyed by the Japanese several years ago and once again only three years back, so that no further preliminary work in surveying is required.

Baron Nakamura's Visit

It is a significant fact that the Changchun-Kirin Railway is included in the Itinerary of Baron Nakamura, the Governor-General of Kuangtung Leased Territory, who is making a tour of inspection over the whole of the South Manchuria Railway System. It is a conclusive proof of how both this railway and Kirin are now interesting Japanese diplomats, and that the day is not far off before they pursue an active and forward policy in pushing their interests into the heart of these districts. Allusion must be made to a coal mine which is situated on the railway not far from the Yinchengtse station and owned by a Chinese Company who have been working it in a primitive manner. It is said to be a promising mine; but as is the case with most Chinese-owned concerns the amount of capital raised being totally insufficient for working in an intelligent manner, the Company has now come to an arrangement with Russian officials of Chinese Eastern Railway who are willing to advance a certain sum of money on the understanding that they shall have the option of buying all coal mined at a fixed price per ton, the mine not being far away from the Chinese Eastern Railway. A light railway can be easily built from the mine to a point on this Russian owned railway.

The present terminus of the Changchun-Kirin Railway is some 3 li outside the northeast gate of Kirin city. Between lies the newly-laid out foreign settlement where all foreigners will reside. A large bridge will have to be built to open the Sungari when once construction work on to Yenchi-Hoi-yong is started. The distance between Kirin and Yenchi is some 800 li from Yenchi to the Chinese side of the Tumen River opposite Hoi-yong which is already connected by a railway to Chhyongjin, the new port of Northeast Chosen. The new railway even before it is completed will be used to convey the native products of Yenchi to the port of Chhyongjin, which is admirably located and protected from the elements and is open all the year round, the anchorage being so good that vessels up to 10,000 tons displacement can approach close to the shore. Since 1909 the Japanese Government has assigned large sums of money amounting to some millions of Yen towards the improvement of the port which is likely to become not only one of the principal Korean ports but one of the world's trade ports. For, with the completion of the Kirin-Yenchi-Hoi-yang extension, all products from both Eastern and Northern Manchuria can be more advantageously shipped through Chhyongjin than through Vladivostock, Dairen or Newchwang. At Hoi-yang the Japanese Government have built enormous barracks and it is the Staff-headquarters for a brigade of Japanese troops. The distance from that town to Yenchi, the principal town of the Yenchi (Chientao) district, is about 100 li, and this is bound to play a big role in the future. It is daily growing in importance and has many Japanese subjects as residents, besides a Japanese and a Russian Consul. There is now also established there a Chinese Custom House, whilst many Kirin native hongs have opened branches there. The Chinese Post Office has a courier service which is maintained all the year round.

The Chientao District

The agricultural products of the Chientao district are estimated in millions of dollars and as there are still many uncultivated tracts of arable land, with the advent of the railway an increase in cultivation will only be a natural result. The country between Kirin and Omoso and from Omoso south-eastwards, is but sparsely populated and but slightly cultivated, principally on account of lack of means of communications. In certain parts the nature of the country is mountainous, so that for the first few years of the life of the new railway, no wonderful returns are likely to be made; the country however is full of possibilities, once properly populated. The soil is rich, admitting the sowing of all kinds of grains and cereals, whilst in the mountainous districts timber abounds. There are several smaller rivers flowing through all this part of the province, most of them being tributaries of the Sungari, the Nintan-Chiang (Hurka River) and the Tuimen, all of which admit cultivation in their valleys.

The whole future of these districts is full of possibilities that must not be overlooked, and which like the question of the waste lands west and north of Changchun should receive the instant attention of the Peking Government. —*By a Special Correspondent of the Peking Gazette.*

Gold Mining in Heilungkiang

The Chinese Government has decided to establish a Gold Mining Department in Heilungkiang (Manchuria) to take charge of the gold mining affairs in that province, this action being the result of a report by the Ministry of Finance to the following effect:

The Ministry of Finance begs to submit that by Article 9 of the provisional regulations of the Gold Mining Bureau the said Bureau shall establish branch offices at suitable places where an abundance of gold, silver, copper and other ores are produced. Now we have found that gold ore in the province of Heilungkiang is exceedingly rich. All the regions along the river from Chichienho on the north-west to Taipingkou on the south-east for a distance of several thousand li, are auriferous. There have been five gold mining yards, the Muho Yard, Kuma Yard, Kwantu Yard and Chichienho Yard, which are official concerns, and Chingkou Yard, a semi-official undertaking. The so-called official yards are really licensed private pits, which give a certain percentage of their output to the Government; and the semi-official yard is very much of the same character as far as the collecting of gold ore per capital is concerned except that at the beginning a certain amount of official funds was put in as capital and the yield is divided proportionately. During recent years the total annual output of gold exceeds 100,000 ounces, yet what the Government has been getting is very insignificant. The net profit from this source in the best year only amounts to about $400,000. It is a most regrettable fact that the miners sell their ore to a neighbouring country at very low prices, thus letting them make the profit which should belong to China.

Another fact is that the miners are allowed to open pits and no restrictions have been placed on them. The consequence has been that they seldom dig deep enough and change localities too often. As these primitive miners leave the waste sand piled up along the river beds the task of those who follow them is made very difficult. Within a few years, therefore, an excellent mining area may be rendered worthless. These conditions should, therefore, be immediately remedied by having special officials actually to control the operation. It is now proposed that a branch Gold Mining Bureau should be established at Heiho, a central locality in the province of Heilungkiang. We request that a Chief of this branch bureau be appointed to draw up a general plan for the whole area respecting the digging of sand, transportation and storage of foodstuff and improvement of blasting and refining. We also propose that a resident director be appointed constantly to visit the different mines and to be on the grounds so that he may supervise the works. If this meets with your approval the Ministry will at once instruct the officials so appointed to hasten to the said regions to establish the said branch office and take charge of the official yards. They shall also be responsible for the supervision of the operations in the semi-official yard at Yuchingkou so that effective reforms may be instituted.

As to the necessary steps to be taken after the establishment of the said branch bureau we beg to enumerate the following:—Encouragement should be given to the miners so that more and more men may offer themselves for the work; careful watch be kept in these regions so that all of the gold secured may be bought, improvements should be made to the pits already dug, and as to the more productive regions, regulations should be drawn up, waterways be opened and the area divided into lots and opened one by one so that the valuable regions may thus be protected and made to yield real profit. Experts in gold mining operations should also be sent to the various gold producing regions to prospect new mines and ascertain the practicability of working the mines partly by modern methods.

Respecting the foregoing the Ministry has instructed Chu Chao, formerly Chief of the Finance Bureau of Fukien, and Liu Wen-feng, the official specially sent to Heilungkiang to investigate into the gold mining affairs, carefully to consider them. If the methods stated above are carried out the receipts will be multiplied, and while the national revenue will be increased, a large quantity of gold will be kept in the country, a fact not a little beneficial to the currency system.

As regards the purchase of gold dust and the transportation and storage of food stuffs, a capital of $400,000 shall be needed. It is proposed that this will be raised in instalments from the 5 per cent of the receipts from official properties of Fengtien pledged by that province. Meantime the Bank of China will be asked to advance a loan for immediate requirements and to establish branch banks in the regions of Peiho, etc., for the circulation of paper money and the restoration of national rights. As to the provincial receipts from gold mining to the amount of more than $400,000, as provided in the estimate of Heilungkiang, the said province will be reimbursed this amount each year after the mines are transferred to the control of the Ministry of Finance, so that the administrative expenses may be duly met. Again, as these regions are far out on the border and are therefore wild in nature and cold in climate, the officials shall need the protection of troops and police. We request that the local officials be instructed to give adequate protection and not to adopt an indifferent attitude. As to the prevention of corruption, etc., the Chief of the Branch Bureau shall be held responsible, etc. . . .

The President' reply: The petition is noted. The proposal to establish a branch Bureau of Gold Mining in Heilungkiang is hereby approved. As to the request for the appointment of. . . . separate mandates have been issued. The rest shall be done as proposed; and the said Ministry shall advise the superior local officials of the province to order the troops and police to give the necessary protection.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Hankow-Canton Line.—Considerable light upon the general railway situation in China, reviewed from a construction standpoint, is contained in a letter from an engineer employed in the survey of the American section of the Hankow-Canton system to Consul General George E. Anderson of Hongkong. This letter says:

"It is now quite certain that our section (the American section) will surely stop work in the near future. The British section (Kwangtung border to Hankow) and the German section (Hankow to Ichang) will both do some construction. The British will build from Hankow to Changsha (capital of Hunan Province), while the Germans will only build a feeder line (of about 75 miles) to the Peking-Hankow Railway. This is the final agreement between the Chinese Government and the bankers. The Hankow-Canton line must be built. Germans agree to give up their section if they could use the money now in the Hankow German bank to build this feeder line to the Peking-Hankow Railway, while the American section will be abandoned (of course due to lack of funds). Now all the loan will be concentrated on the British section and the Germans will get a small part of it to build a small line. So you see we shall have to quit here very soon. Just before the war we thought we were the luckiest ones among the engineers, for if this line is ever built it would mean a chance of a lifetime."

Business in some lines of railway material will have to be done on a considerable scale in the near future to maintain lines now in operation. The indications are that American manufacturers will have an especially favorable opportunity to secure much if not most of this business. Little may be expected in the way of new work.

Chinese Eastern Railway Forts.—The Tokyo Tsushin reports that the management of the Chinese Eastern Railway Company, with permission of the Russian government, has decided to build redoubts at Chanchun and other places where the railway has bridges, for the protection of the railway line.

Nanchang-Kiukiang Loan.—According to a Peking dispatch to the Japan Advertiser owing to disputes with a Japanese company over loans, the Government of China has appointed Mr. Shen Chao-chih chief director of the Nanchang Kiukiang line. The railway company owes a Japanese company said to be Messrs. Okuma Company 3,000,000 dollars. This is to be adjusted, otherwise the railway company will became another San Yeh Ping corporation in the Yangtze Valley. The government did not take over this line, but it wants to adjust its affairs without further delay. The Japanese want to control the financial department of the line as security for their loans.

Japan's Coronation Cars.—The freight cars now in general use in Japan are too small to carry the Imperial state carriages from Tokyo to Kyoto, consequently 26 new cars have been constructed at the Shimbashi railway works. A "trial loading" was held at Shiodome station with carriages sent to the station by the Imperial Household Department, and a trial run of the new freight cars was made between that station and Numadzu station. The total number of the freight cars to be used for coronation purposes by the Imperial Household Department is 550.

Japan Postpones New Railways.—In view of the steady reduction in the receipts from various sources, the Railway Board of Japan is reported to have decided to postpone planned works involving expenses of Y.3,000,000 during the present fiscal year.

15,000 Japanese Cars for Russia.—According to the Tokyo Nichi Nichi, the Russian government has placed an order for 15,000 railway cars in Japan. The Japan Car Manufacturing Company, the Osaka Car Manufacturing Company, the Kawasaki and the Mitsu Bishi Companies are conferring on the order. The manufacturers expect to prepare as many as their shops will produce and will ask the Imperial Railway Bureau to complete the order.

The maximum yearly production from shops of these companies and the Railway Bureau is far below the required number.

Yokohama to Buy Trams.—It is reported that a movement is afoot for the municipalization of the Yokohama tram service, which is now a private enterprise. At the special general meeting of the Yokohama Electric Railway Company, Mr. Sojiro Horiya, a large shareholder, urged that it would be more profitable for the shareholders to sell the plants and business to the Yokohama municipality. The municipality some time ago planned to purchase the plants and business of the present Yokohama Electric Railway Company, and also lay down new lines. The plan was dropped as the 50 yen paid up shares were quoted as high as 65 yen. The business of the company has not been so prosperous lately and the market value of the shares has now fallen to 39 yen. The municipal assembly will advocate the purchase but its realization is a question of time and money.

S. M. R. Traffic Returns.—The South Manchuria Railway Traffic Returns for the month of August total Y1,157,015.53, a daily average of Y37,323, which is an increase of Y1,070.62 over the corresponding period of last year. The total traffic receipts from April last to the end of August reached Y8,860,773.07 a net increase of Y1,110,799.

Railroad for Negros.—A corporation has been organized with a capital of $250,000, all private Filipino capital, to construct a railroad on the Island of Negros. The railroad will traverse the sugar district. Surveyors are already at work on the right of way. It will traverse the northern part of Negros between the port of Escalante, on the east, and Pulapandan, on the west coast. The entire cost of the line is to be $700,000 gold. At present the company is organized with a capital of $250,000, of which $150,000 has been paid in. As much construction work as possible will be done with the original capital, and then first and second class mortgage bonds will be issued to provide funds to extend the line.

Australia's New Railways.—The Premier has received from the Director General of Public Works a memorandum respecting the areas of Crown land which the Government will be in a position to throw open upon the construction of the Mirrool-Hillston and Barmedman-Hillston lines of railway. The Director General states: "The two railway proposals are closely related regarding the country to be served. For the expenditure of $2,570,000 in the construction of 55 miles of railway (each proposal being 72½ miles in length) there would be available for closer settlement an area of 2,275,000 acres of Crown land. If, by the construction of these two lines, the Crown land is increased in value by $1.20 per acre, the amount would aggregate $2,750,000, a sum sufficient to pay for the cost of construction."

Indo-China's new Roadbed.—By decree of the Governor General of Indo-China dated May 25, 1915, a contract was approved with M. Emile Mayeur, entrepeneur, Saigon, for constructing the roadbed of the Pnompenh-Tonleap section of colonial route No. 1, a new road to be built from Saigon to Pnompenh, the capital and chief city of Cambodia. The contract price is 700,000 piasters (nearly $350,000). This does not include bridges, which are let by separate contract, but it does include culverts, the value of which is estimated at about $10,000. The country is low and marshy, and in construction of this road there will be more filling than grading. Most of this work will be done by coolie hand labor. The road will ultimately be built up with Bienhoa stone or native granite. Contracts for construction of bridges are let from time to time. Usually one or two months' notice is given in the local official publications to those who wish to submit sealed bids. The contracts are invariably granted to local firms. MM. Brossard et Mopin, entrepeneurs, Saigon, get most of the contracts. The country is intersected with arroyos, bayous, and canals, and subject to frequent inundations. Consequently many bridges are necessary and many of them must be long and strong. Those recently constructed have been of iron and steel, with foundations of reinforced concrete. Cement is one of the leading products of Tonkin, but the structural iron and steel must be imported. It has come mainly from France.

SHIPPING

New M. M. Steamer for China Run.—The Messageries Maritimes Co. has completed a new mail steamer, the André Lebon, for the China and Japan run. The new vessel's dimensions are: length, 538 ft.; breadth, 72 ft.; net tonnage, 10,260; gross tonnage, 22,000. It is a twin-screw steamer, fitted with quadruple expansion engines, developing 12,500 horse power and giving the steamer an average speed of sixteen knots. The accommodation for passengers is luxurious, with a spacious and magnificent dining hall, drawing and music rooms, passengers' elevators, children's recreation room, smoking and reading rooms, verandah-café, electric laundry, etc. The decorations are the work of the prominent French artist, Mons. Girette, the main staircase, or *escalier d'honneur* being a special feature. The André Lebon has accommodation for 200 first-class passengers, including four suites *(appartements de luxe)*, 180 second-class, and 110 third-class. The steamer will probably leave Marseilles for the Far East some time in October, or early in November.

T. K. K. to Canal Via Manila.—Manila is to have another new steamship line from New

York to the Philippines via the Panama Canal, according to the latest information from the United States. The Tsushima Maru, Toyo-oka Maru, Takata Maru, Toyo-eshi Maru, Tokuyama Maru, and Toyama Maru, which are now temporarily on the European line of the Nippon Yusen Kaisha, will call at New York and Philadelphia on their homeward voyage, to take on cargoes of kerosene, etc. After their return, the New York line will be inaugurated this autumn with these vessels. Messrs. Henderson and company will act as agents of the company in New York, and other agencies will be established in New Orleans and Galveston.

The route probably will be New York, New Orleans, Galveston, Colon, Honolulu, Manila, Hongkong, Shanghai, Kobe, and Yokohama. During the war, Vladivostock will probably be made a port of call. Messrs. Warner, Barnes and Co., Ltd., the Manila local agents of the company, have not yet received definite information regarding the new line.

Australians to Salve Emden.—To salve the Emden as she lies on Cocos Island, the tender of Messrs. E. G. Barnley, E. S. Felton, G. M. Richards, and C. H. Read has been accepted by the Australian naval authorities. It is the intention of this syndicate to begin operations as soon as possible. They anticipate a complete save, their object being to take the Emden to Sydney under her own steam. The Commonwealth will then have the option of purchasing the warship, but if it does not the warship will be disposed of in some other way.

Russian Ship Subsidies.—The Russian Volunteer Fleet is to receive for 1915 the following subsidy: Vladivostok-Tsuruga and Vladivostok-Shanghai Lines, 558,000 rubles (Gold $303,000); Vladivostok-Odessa Line, 178,000 rubles ($92,000); Vladivostok-Okhotsk-Kamchatka & Tartar Straits Line, 511,000 rubles ($263,000); Vladivostok-Peter the Great Bay and Coasting Line to Datta, 105,000 rubles ($54,000.)

Japan Gets Russian Ship Order.—A shipping company at Odessa has decided to place with a Japanese dock company an order for the construction of several passenger steamers of a large type. The order includes eight steamers of the first class type. The company will order several steamers later for use in foreign service. The agents of the Japanese dock company at Odessa, together with Russian engineers, are drawing the designs.

Dairen Shipping Returns.—The shipping returns for the port of Dairen for last month, as furnished by the Marine Office, Dairen, give a total of 176 vessels with gross tonnage of 248,671 in entries and 180 vessels with gross tonnage of 257,111 in clearances, showing an increase of 4 vessels (but a decrease of 2,078 in tonnage) in arrivals and 5 vessels of 2,231 tons in departures over the previous month. In addition, two military transports with gross tonnage of 3,061 left this port during the same period.

The incoming steamers under the Japanese flag were 150 of 205,470 gross tonnage.

Russia Buys Captured Ship.—Negotiations have been in progress for several months between the Russian Shipping Trade Company and the British Admiralty concerning the purchase of several steamers, which formerly belonged to the Hamburg-Amerika line and were captured by the British navy after the outbreak of the war. They will be delivered to the Russian company after the war is over. —Tokio Asahi.

American Shipbuilding Declines.—During the fiscal year ended June 30, 1915, there were built in the United States and officially numbered 1,226 vessels of 215,711 gross tons, compared with 1,291 vessels of 311,378 gross tons for the same period of 1914. The principal vessels are two colliers built for Panama Canal trade, the Achilles and the Ulysses, of 11,081 and 10,910 gross tons, respectively. Other vessels over 5,000 gross tons are the John D. Rockefeller, a tanker of 8,374 gross tons; the Great Northern and Northern Pacific of 8,255 gross tons each, built for passenger service on the Pacific coast; the J. A. Moffett, 6,395 gross tons and the Lyman Stewart 6,054 gross tons, both tankers and were built on the Pacific coast. Only one large sailing vessel was built during the year, the Georgia, a schooner of 1,318 gross tons. In all, 23 vessels of over 1,000 tons each were built, aggregating 123,242 tons.

New Japanese Liner.—An Osaka dispatch reports that the Manila Maru, an addition to the Osaka Shosen Kaisha Tacoma line that has been under construction at the Mitsubishi Shipbuilding Yard at Nagasaki, has been transferred to the Osaka Shosen Kaisha by the shipbuilders. The displacement is 10,000 tons. Mr. Shioda, president of the Osaka Shosen Kaisha; Mr. Chiura, chief engineer, and several other leading officials went to Nagasaki from Osaka to receive the steamer, which leaves for Tacoma on October 28, according to the present schedule of the Osaka Shosen Kaisha.

Japan May Subsidize Formosan Line.—It is doubtful whether the Formosan Government-General will grant a subsidy to the steamship companies operating between Formosa and the South Sea Islands. Mr. Uchida, chief of the civil affairs section of the Formosan Government, however, strongly favors the subsidy, it is reported. Although the Government of the Island is inclined to curtail every expense for new undertakings, it is generally believed that it will finally grant a subsidy to the Japanese steamship companies that will make Takao, Formosa, a port of call. The first Japanese Company which is in position to enjoy the subsidy is the Osaka Shosen Kaisha.

China Motor-Boat Traffic.—The steady extension of motor-boat traffic on south China waterways, especially along the West River and its tributaries in Hongkong's trade field, noted for the past three years, continues in even greater degree, writes Consul General George E. Anderson, from Hongkong. It is announced that a motor-boat service has finally been established as far as P'ing Loh, on the Cassia or Fu River, about halfway between Wuchow and Kweilin, the capital of Kwangsi Province. The service of such boats has been extended up the West River very gradually. The service between Wuchow and Nanning was the first started, and it is maintained, with some slight interruptions, the year around, though at low water the difficulties of navigating the narrows and rapids in the river are great. During parts of the year a service is maintained from Wuchow to Lungchow, and this is considered fairly reliable.

The service from Wuchow to Po-seh was established comparatively recently, but it was thought impracticable to go farther up the river, though a British consular officer some time ago succeeded in reaching Kweilin in a small motor boat. The extension of the service 80 miles up this river to P'ing Loh is noteworthy, not only in that it marks a further step of development of such service generally, but it also reaches into country tapped by the headwaters of streams flowing into the Yangtze River through southern Hunan Province. All of these rivers carry freight and passengers by native boats, but the service in such vessels is so slow and uncertain that it means little in the extension of foreign trade. The more rapid and more regular services have had a stimulating effect upon all lines of business. For the construction of the motor boats used on these rivers special designs have been made after several years of experience. Most of the boats are now constructed in the interior, but motors and equipment are usually purchased in Hongkong and are largely of English make. The type of motor required for such vessels has been described as a heavy-duty motor with few working parts, an ability to stand exposure and neglect and using kerosene for fuel.

Holts Buy Indra Liners.—The Holt Steamship Company of Liverpool is reported to have purchased from the Indra Line the steamers Indra, Indradeo, Indraghiri, Indrakuala, Indrasamha, Indrawadi, and Inverclyde. These steamers have hitherto been plying between New York and the Far East.

O. S. K. Hears Minnesota Is Sold.—An Osaka message received on September 3, repeated the report that the Great Northern liner Minnesota had been sold. This report says the purchaser is a London company and the purchase price $2,000,000. The Osaka Shosen Kaisha received this message from their agency at Chicago. At the Great Northern office in Yokohama the report was neither confirmed nor denied. The Minnesota is to-day the largest vessel on the Pacific having a displacement of 37,500 tons. Built eleven years ago, she is 630 feet long, 73.6 feet beam and 56 feet deep from keel to saloon deck amidships. From the keel to the upper navigation bridge is 88 feet 4 inches. She has accommodation for 2,000 persons, including 318 cabin passengers and 1,500 steerage, in addition to a crew of 250.

Japan's Shipping Tonnage.—According to figures gathered by the Department of Communications, at the end of July there were owned in Japan 2,134 steamers with an aggregate tonnage of 1,594,894. Ships of over 1,000 tons each numbered 4,121, with an aggregate tonnage of 322,363 tons; sailing vessels of over 2,000 tons, 8,341, with an aggregate tonnage of 529,681; and ships of over 200 *kaku* capacity, 1,312, with an aggregate tonnage of 429,346 tons.

P. M. Withdrawal and Japan.—The withdrawal of the Pacific Mail steamers from the trans-Pacific trade will have a serious effect upon the Japan-America trade. The tonnage to be taken out of the service between San Francisco and Japan ports via Honolulu, is shown in the following table comparing the cargo capacity of P. M. liners and that of the T. K. K. liners.

	P. M. liners. cargo capacity.	Average shipment in Yokohama and Kobe.
	Tons	Tons
Mongolia	15,000	6,500
Manchuria ...	15,000	7,000
Korea...	8,700	4,000
Siberia	8,500	4,000
China	3,800	1,700
Total	51,000	23,200
	T.K.K. Liners	
Tenyo Maru ...	6,500	4,550
Chiyo Maru ...	5,500	4,550
Shinyo Maru ...	6,500	4,550
Nippon Maru ...	3,000	2,100
Total	22,500	15,750

The P. M. liners assigned about 46 per cent. of their cargo capacity to shipments in Yokohama and Kobe, and the T.K.K. line about 70 per cent, the rest of the space being assigned to shipments from China ports. It follows that the withdrawal of the P. M. liners from the trans-Pacific business means a decrease of cargo capacity of 23,200 tons as far as Japanese trade is concerned. Even if

the entire capacity of the T.K.K. liners be devoted to the Japan-America trade, there would still be a shortage of 16,000 tons to supplement the loss. The probable result will be an increase of freight rates.

New Chinese Gunboats.—Last year the Chinese Government intrusted the building of some nine gunboats with the Yangtze Engineering Works (Ltd.), Hankow. Three boats have been launched. The boats are stated to be about 100 English feet in length, and are intended for river use, and, while smaller, are very like some of the river boats employed by foreign Governments.

Japan's New Dreadnought.—The Yamashiro, dreadnought, of 30,000 tons, which is now being built at the Yokohama Dock, will be launched about the middle of November. In trial runs the super dreadnought Fuso, in Inland Sea attained a speed of more than 23 knots.

Philippines Seek Shipping.—Governor General F. B. Harrison in an effort to obtain shipping facilities to replace the Pacific Mail has come into touch with other lines which are now operating or plan to operate in the trans-Pacific carrying trade. The new Chinese steamship company, which was organized recently, will make Manila a port of call, according to advices which Governor General Harrison has received from the American minister in Peking, and efforts are also being made through the secretary of war and the San Francisco Chamber of Commerce to induce the Java, China, Japan Lijn, a Dutch corporation, to inaugurate a service between Manila and San Francisco.

"When the committee of business men met with me in August," said the Governor General, "I stated I had confidential information that a new steamship line would probably soon be formed for trans-Pacific carrying trade and that I had received assurances as strong as could be given that Manila would be included in the ports of call of this new line. This information I received from the American minister in Peking during my visits to that city in May of this year, during which time I vigorously urged the inclusion of Manila as a port of call. The newspapers have now announced the formation of this Chinese company and I assume the information is no longer confidential."

WATERWAYS AND HARBORS

National Conservancy Bureau—The keynote of Mr. Chang Chien's report to the President on the work of the National Conservancy Bureau during the past year lies, says the *Peking Daily News*, in the following sentence:—"Its progress is hampered by the lack of funds." The progress of the Bureau means the carrying on of the many projects and schemes which if duly executed would give many provinces security against disastrous floods. As funds are lacking, the organisation of the Bureau is far from being perfect. The staffs maintained by the principal and branch bureaux are very small, there being only six technical experts and clerks attached to the Peking Head Office. These technical experts have been kept very busy surveying the Huai River, the Liao Ho and the Metropolitan waterways. They have also been sent out to visit the Yangtse River and the sea dykes of Chekiang.

The first important step is the making of good maps of the river areas and with this end in view, Mr. Chang Chien submitted budget estimates to the Ministry of Finance for the Surveying and Mapping Department, which costs about $2,700 per month. But the July funds have not yet been paid by the Ministry of Finance.

Mr. Chang Chien aims to start the conservancy work on the Huai River, and make it the model for conservancy work in other provinces; and for that purpose a loan agreement was concluded last year with the American Red Cross Association. The said Association stipulates that Mr. Chang Chien must first provide them with a good map of the Huai-pei area so as to enable them to reach a decision whether the Huai River should flow into the sea or into the Yangtze River. The necessary funds for making the surveying have been requisitioned for, but so far only a small part has been secured and the surveying party has not been able to make much headway. Mr. Chang Chien now arranges with the surveying party to make maps for the more important sections of the area and these maps will be finished within this year. This is the best he can do under the circumstances.

The Nanking River Conservancy School has been established where students will be graduated in two years. Conservancy Schools will be established in other provinces, which will soon turn out useful workers. Mr. Chang Chien will also gather together competent men who possess knowledge of either Chinese topography or modern theories and practice of hydraulic engineering. He admits that such men are hard to get. He will send men to make investigations regarding the flood conditions in the various provinces. The Governors of all provinces will be required to report direct to the Conservancy Bureau on the river conditions so that they may be impressed with the importance of conservancy work, to which they hitherto paid little or no attention.

Chefoo Harbor Work.—On account of the continued fine weather, the harbor improvement work at Chefoo is making good progess. The work was started at the base of the cliff, on the brow of which stands the American Consulate. Blocks of stone, which form the most important building material, are being quarried from Peitao island. The contractor is the Chinese compradore of Messrs. Diederichsen & Co. The price quoted is 49 cts. Mex. per ton for delivery at Chefoo Island. Cement is to be supplied by the Onoda Cement Factory through the medium of the Mitsui Bussan Kaisha. The total amount contracted for is 60,000 barrels, the term of supply running for three years.

New Harbor at Gensan, Korea.—Construction work on the harbor at Gensan was started with ceremony on August 15, in the presence of General Count Terauchi, Governor-General of Korea, and many other officials.

Naval Dock at Yokosuka.—The work on the Yokosuka Naval Dock, largest in the Orient, will be completed in October. The dock was started in July, 1911, with an appropriation of 1,200,000 yen. The length of the dock is 800 feet, width 120 feet, and depth 40 feet. After its completion the large battleships, Kongo and Hiyei can be berthed easily. It is the intention of the naval authorities to complete the dock before the launching of the Yamashiro, which will take place in October.

Yokohama's new Repair Dock.—President Asano, of the Toyo Kisen Kaisha has received a permit from the Kanagawa prefectural authorities to reclaim foreshore amounting to 250,000 tsubo at Tsurumi coast. The remaining applications of reclamation with a total of 4,500,000 tsubo will be allowed in the near future. Mr. Asano will build a large dock in Yokohama, where vessels of the size of the Chiyo Maru can easily be repaired.

Fusan (Korea) Harbor Works.—It is reported from Fusan that the harbor construction there, which was started in 1911 at the estimated cost of $1,904,352, was planned to be completed next year. On account of financial retrenchment by the Government, however, the estimates for the work for next year, amounting to $240,000, have been reduced by about 20 per cent. The work to be carried out next year consists of constructing a second pier, dredging the sea near the pier and the mouth of the harbor, and constructing a breakwater at Cholyang.

A plan is also mooted among the business men of Fusan and Seoul to establish a small dockyard in Fusan at a cost of approximately $50,000. The main object of the dockyard will be to take charge of repairs to the vessels of the Chosen Yusen Kaisha, when such vessels do not exceed 600 tons. The erection of such a dockyard will save the necessity of sending such vessels to Japan for repairs, and, in view of the growing importance of Fusan, will prove a welcome addition to the facilities of that port.

Australian Canal Proposed.—The assistant treasurer of the Government has been in the Newcastle district investigating an important scheme in connection with the port of Newcastle and Port Stephens. Under a new harbor trust a coastal canal would be dredged, through which vessels could enter or leave Newcastle in all kinds of weather. Port Stephens is the haven for coastal craft in rough weather, and is to be made a naval base. Motor boats at present ply on Tilligery Creek, which forms part of the route of the proposed canal.

Irrigation Schemes.—A Simla correspondent states:—The Government of India have four important irrigation schemes in view. The Sutlej Valley Project is now being worked out by the Punjab Government in consultation with the Bhawalpur and Bikanir Durbar, the Cauvery scheme will also come up in a definite shape as soon as the arbitration proceedings conducted by Sir Henry Griffin are ratified by the Government of India. A new alignment has been proposed for the Sarda project and a complete scheme will be ready for consideration before long. The Sukkur Barrage Scheme is being re-examined by Bombay Engineers and their definite recommendations will reach the Government of India without long delay. With the approaching completion of the Triple Canal Project in the Punjab the Government of India will be able to finance these schemes as soon as the war conditions permit, but the examination of these projects by the Supreme Government and the Secretary of State will take time.

Coast Preservation in Chekiang.—The Governor of Chekiang has submitted to the Central Government an estimate of the cost for repairs and construction of the sea dikes of Haining, Haiyen, and Pinghu. The estimated cost is $231,100, and the Governor requests $100,000 immediately. The President has instructed the Ministry of Finance to furnish this amount.

New Harbour at Honto, Japan.—It is reported that the Governor of Kabafuto has decided to construct a harbour at Honto, a few miles from Otomari, at a total cost of 3,000,000 yen spread over a period of seven years from 1916. The new harbour will be connected with Otomari by a railway, which will be laid by the Mitsui Company.

PUBLIC UTILITIES

Macao Water Supply.—Two syndicates are competing for the contract for laying mains for the water supply. One syndicate makes it

a condition that all the wells in the city shall be closed and that the water-boats shall cease to do business. The other syndicate makes no such conditions, and as the idea of forcing people to connect their property with the water mains is not relished, the public may be said to favour acceptance of the second tender. The water is to be supplied from the Ribeira Grande by boats and pumped up to a reservoir on Penha Hill. Many of the principal streets are being opened up to lay iron pipe mains for sea water for use in case of fire.

The arrival of the plant bought at Singapore at a cost of £14,000 for harbour improvement is shortly expected. It includes a dredger, a tug-boat, two locomotives, a steam elevator, 6,000 metres of rail, twenty wagons and other items. The mud lighters were unsuitable for Macao and it is proposed to invite tenders from Hongkong and Shanghai for such mud-boats as are required.

Philippine Public Works.—The program of provincial and municipal public works for the fiscal year of 1915 is steadily growing larger, the total of insular loans to towns and provinces toward their cost during the months of April, May, and June now being P508,250, of which P122,000 is for public market buildings. The biggest project is the proposed water works for Zamboanga. Already a loan of P105,000 has been made and a further loan of P70,000 is to follow when needed.

It is estimated that about P800,000 will be spent for market buildings during 1915, and nearly P700,000 will come from the insular government in the form of loans. For this purpose the half-year total is now P218,000. Loans prior to April 1, went to the following towns: Lemery, Batangas; Sto. Thomas, Batangas; Bacarra, Ilocos Norte; Bauang, La Union; Hilongos, Leyte; Ormoc, Leyte; Penaranda, Nueva Ecija; and Bacon, Samar. Subsequent loans are as follows:

San Pablo, La Laguna, P29,000; San Isidro, Nueva Ecija, 10,000; Bago, Occidental Negros 15,000; Manaoag, Pangasinan, 18,000; San Juan del Monte, Rizal, 10,000; Sorsogon, Sorsogon 25,000; Leon, Iloilo, 15,000.

In addition to these market loans, the insular government has approved the request of Zamboanga for P175,000 to defray part of the cost of the projected water works.

The government has loaned during three months for miscellaneous projects P281,250, distributed as follows:

Batangas, Nasugbu-Tuy road, three bridges P82,500; Bulacan, Municipal building at Hagonoy, 30,000; Occidental Negros, Bridge on Binalbagan river, 55,000; Ambos Camarines, Pili-Taga on road and bridges, 93,750; and Antique, Provincial building, 20,000.

The executive bureau each year approves loans for special public works projects, aggregating some P2,000,000. The loans are made for terms of not more than 10 years, and bear interest at the rate of three or four per cent, depending upon the particular fund from which loaned. There are four insular funds available for the purpose, these being the friar lands bond fund, the public works bond sinking fund, and the insurance fund, all of which are loaned at the rate of four per cent, and the gold standard fund, loans from which are made at the lower rate of interest.

Iloilo Water Problem.—The greatest problem that now confronts Iloilo, "second city of the Philippines," is that of providing an adequate supply of pure drinking water, but the natural and engineering difficulties presented are such that it has been as yet impossible to arrive at any conclusion as to the manner in which such a supply is to be furnished. According to Acting Secretary of Commerce and Police Jaime C. de Veyra, who is now engaged on the problem, there are only three propositions that have been considered. The first was the drilling of artesian wells. Various attempts were made, but only 18 wells were successful, and in these the water secured is slightly salty. Not only that, but the tests made by the bureau of science show that the salt content is continually increasing.

The second proposal was to bring water from the Tigum River, a distance of 25 kilometers. It has an abundant supply of good water sufficient to serve the ten towns along the route of the mains. The cost of building a reservoir and the necessary aqueduct would be P2,000,000. This is considered too much for the government to expend at present.

The third proposal has been to pipe water from the island of Guimaras, just in front of Iloilo. The engineering problem concerned in this project is difficult as the water must be piped under the sea across the channel, a distance more than three kilometers. The bottom of the channel is rugged, in some places 90 feet deep, in others comparatively shallow. The current is swift, and to lay a pipe line along the bottom would establish an engineering precedent. The greatest drawback is that should the pipes break at any point, the whole line would have to be raised to effect repairs. This could be obviated by tunneling under the channel bed, but the expense involved would be greater than that of the Maasin project. To follow the pipeline plan would not cost more than P250,000, or one-eighth of the cost of the Maasin aqueduct. The acting secretary of commerce and police is inclined to favor the Maasin plan, and it is probable that efforts will be made to secure sufficient funds to enable the government to sanction the project.

Tayabas Road Progress.—Governor Lucban of Tayabas is pushing forward the work on a new road in the municipality of Infanta, one of the most northerly towns in the province. A fine concrete market has been inaugurated in the town of Tayabas.

Mukden's Waterworks.—Referring to a statement that the Chinese promoters of a new waterworks service for the city of Mukden had arranged with some American capitalists to borrow enough funds to meet all the requirements, the *Manchuria Daily News*, states that, in spite of the close Sino-Japanese relations in South Manchuria and Japan's preferential claim in almost everything therein a loan agreement has been signed between the Chinese authorities and some American capitalists, and that the only question now pending is when and how the delivery of the money should take place.

"In case of these rumours being true, the Japanese may take it as a deliberate snub and even as an insult hurled in their face, since there is no questioning the wisdom of the Japanese offer to extend the waterworks service belonging to the Railway Town to the Chinese city, which will incur only comparatively low cost and labour. Such a snub would go home to the quick all the more stingingly since South Manchuria has come to be bound to Japan with a much closer and stronger tie by virtue of the new Sino-Japanese Treaty."

Samar's Modern Roads.—Reports from the Province of Samar, P.I., indicate that its public works are making good progress. Work is being carried on to complete the 12½-mile from Calbayog south to the Gandara River. Five of the six concrete slab and girder bridges on concrete piles or girder abutments are completed. On the 9-mile road from Calbayog to Oquiendo a bridge is being constructed over the Minloan River; 4½ miles of this road are already completed.

AGRICULTURE

Cotton Cultivation in China.—According to the Ministry of Agriculture and Commerce only eight provinces in China are growing cotton. The area devoted to the cotton plant is approximately 26,000,000 acres and the annual output should amount to 1,509,000 tons of cotton, under proper cultivation.

Brick-Tea of Foochow.—Brick-tea manufacture was begun in Foochow early in the seventies. Three factories equipped with British machinery were in full operation within a few years and in 1875 some 6,200,000 pounds were shipped from the port, and four years later, the trade had grown to 13,700,000 pounds. In 1891 a gradual decline began. The transfer, for economical reasons, of the Russian tea market to Kiukiang and Hankow led to the closing of all three foreign factories in Foochow.

In 1910 a Chinese company called the Chee Woo Brick Tea Co. was organized with a capital of $150,000. The company purchased the building and machinery of the closed factory and now operates two brick-tea presses during the season. Its output last year totaled 1,600,000 pounds, valued at $86,000 gold.

Practically all this product was pressed from the dust, only 2,000 pounds of the whole leaf being used. The tea bricks are packed in bamboo baskets, of 80 bricks each. A brick of tea dust weighs 40 ounces, the cost of manufacture being 13 cents. A brick of leaf tea weighs 36 ounces and costs to manufacture 19 cents, inclusive of freight to Shanghai, the distributing center. The factory's 200 workmen, in day and night shifts, produce 8,000 bricks a day. Wages inclusive of board, range from 6 to 20 cents per day. The tea dust costs $2.80 to $6.72 a picul of 133⅓ pounds.

Russia's Big Tea Purchase.—A special war supply commission has bought all the available Chinese brick tea in stock in Vladivostok, amounting to 700,000 poods valued at Rls. 10,000,000. Hankow tea merchants will profit by this clearing of the market whilst Chinese growers are sure of good prices.

China's Grain Crops.—According to investigations made by the Chinese authorities, the annual yield of cereals in the Republic in an ordinary year is estimated at a little over 880 million piculs. Roughly stated, it comprises the following:—Rice 65,000,000 piculs; wheat 445,000,000; kaoliang 95,000,000; other cereals 120,000,000; beans 155,000,000.

Stock Raising in China.—Regulations containing plans for the reclamation of waste lands, cattle raising in Fengtien province and the north, proposed by Yao Hsi-kuang and associates, have been approved by the Ministry. The company will be called the Tofu Reclamation and Cattle Raising Company, and only Chinese citizens are allowed to subscribe to its shares. The company desires to take up some of the vast waste lands in the North, and the development of the natural resources there. The company plans to purchase land in the regions in Taonan and along the banks of the Kweiliu River in Fengtien province, and will finally extend its efforts towards various places in the north of Manchuria and Mongolia. The capital proposed is $1,200,000 divided into 24,000 shares of $50 each. As soon as one fourth of the amount is paid in the Company will be formally inaugurated.

Shantung Cattle for Dairen.—The import of Shantung cattle to Dairen from both Lungkou and Tsingtao has been almost doubled in quantity since last March, compared with the preceding year. From March to October fish is found in plenty in the market and the consumption of beef is correspondingly affected during the intervening period. Which makes the recent increase in the import figures all the more remarkable.

Mongol Cattle to Russia.—The export of Mongolian cattle to Russia has been increasing since the beginning of the War. Cattle are obtained by the exporters at Taonanfu, Chenchiatun, Petune, and Manchouli. The total live stock bargained for at these markets number 200,000 head per annum. Lately cattle are procured also at Hailar, Tsitsihar, Kwanchentze, Changchun, Tienling, Mukden, and Liaoyang.

Flour Consumption in South Manchuria.—Although the figures for last year are not yet available, the following statistics giving the consumption returns of flour in South Manchuria for the preceding three years have recently been compiled as follows:—

	1911 sacks	1912 sacks	1913 sacks
Dairen	1,539,886	2,161,280	746,082
Newchwang	681,926	619,636	559,740
Changchun	103,365	116,469	132,057
Tiehling	48,647	96,058	89,842
Mukden	177,830	229,374	349,429
Antung	692,560	655,745	610,444
Other cities	226,457	608,661	528,400
	3,475,078	4,477,223	3,022,994

The above may be classified according to the places of production as under:—

	1911 sacks	1912 sacks	1913 sacks
American	2,228,770	2,116,633	865,964
Tiehling	463,985	696,286	968,310
Harbin and Changchun	117,702	417,386	309,560
Shanghai and Hankow	664,613	1,246,918	879,160

Wild Silk of China—The country about Fenghuangcheng, Manchuria, is the most thriving wild sericultural centre in that region, having Antung for the accumulating and distributing centre. The bulk of sericultural products of this locality is sent to Antung by train while the outputs of Kuantien, Siuyen, etc., are brought over to Antung by carts. Tussah silk is reeled from wild cocoons either at the places of production or at Antung. The export returns of the sericultural products from Autung are as under.

	Tussah silk Piculs	Wild silk Piculs	Waste silk Piculs	Cocoons Piculs
1909	6,507	13,387	3,636	1,257
1910	3,773	8,850	3,068	411
1911	5,040	92,807	5,645	978
1912	7,268	98,945	3,052	298
1913	5,847	120,183	4,591	127

Manchurian Tobacco.—The stoppage of import of Russian leaf into Manchuria has given an impetus to Manchurian tobacco, which is grown in considerable quantities in the Kirin district. Local cigarette factories have been mixing Manchurian leaf with the Russian and producing an article suitable to the Russian palate, so there is no reason why experts should not be able to blend Manchurian tobacco and produce cigarettes which will find favour among Russians, who undoubtedly are the biggest cigarette smokers in the world.

Sugar in Szechuan.—The Acting Governor of Szechuan province has forwarded to Peking a memorial on the sugar industry, stating that forty hsiens in the province have extensive sugar cultivation. Sugar is the third most important agricultural product of the province. Under Viceroy Chao Erh-hsun efforts were made to develop the industry in the province to take the place of the opium cultivation, a sum of $150,000 being raised in Chuchung to establish modern refineries. The Acting Governor is anxious to recover ground lost by the Revolution and is working for the establishment of the new refineries. He estimates that $1,000,000 will carry out the work on an adequate scale. Of this sum he has raised $400,000 from official sources, and is appealing to the Ministry of Agriculture and Commerce to assist in the raising of the remaining $600,000. He proposes to issue 12,000 shares of $50 each to be taken up both within and without the province, the proposed undertaking to be a joint Government and commercial concern.

To Cultivate Hainan.—According to the Sain Weekly Mail five rich Chinese merchants, returned to Canton from abroad, have been granted permission to visit the island of Hainan, with a view to floating a company for promoting industries and agriculture there and clearing the land of its timber. They guaranteed $2,000,000 and are being given protection on their trip.

China Oil Tree in U. S.—The adaptability of the Chinese wood-oil tree for cultivation in northern Florida seems to have been proven by recent experiments and a tree at Tallahassee, Fla., bore two bushels of the fruit last season. The United States imports annually about 5,000,000 gallons of Chinese wood oil, valued at $2,000,000. As the demands of the American varnish trade are steadily increasing this affords a very large domestic market for this prospective new Florida industry. The tree is *Aleurites cordata* (Chinese tung yu), the seeds yielding the nut from which the oil is extracted.

Japan's Rice Crop Estimate.—The first estimate on the rice crop this year, taken August 27, is 57,686,525 koku. That is larger than the crops in any of the last ten years, which figures follow:

1905, 38,172,560 koku; 1906, 46,302,530; 1907, 49,052,065; 1908, 51,933,893; 1909, 52,437,662; 1910, 46,633,376; 1911, 51,712,433; 1912, 50,220,509; 1913, 50,255,267; 1914, 57,006,208; 1915 (estimates), 57,686,525; average crop, 51,312,353.

The Tokyo Rice Exchange market has been experiencing slump after slump since the publication of the above Government estimate. The quotation on Monday was 12.07 yen, 22 sen below the lowest price recorded of last autumn. According to an authority in the rice trade, 13 yen on the Rice Exchange market is the minimum mark at which farmers can pay for the cost of production, but when quotations fall below that mark they cannot even pay their taxes.

Korean Tobacco for China.—Great activity has been evidenced lately in the exportation of Korean leaf tobacco to Tsingtao and Newchwang. An order from the latter place for 41,250 pounds has lately been received by a local dealers' association, while cigarettes in large numbers have been shipped from Chosen to Tsingtau since the capture of that place by the Japan forces. It is hoped that this favorable condition will be maintained.

Japanese Rice Fields.—According to returns compiled by the Hypothec Bank of Japan, based upon the reports of the agricultural associations of all districts throughout Japan, the market price of rice fields is 699 yen per tan ($1,421 per acre) in Hiroshima Prefecture for the maximum, and 61 yen per tan ($124 per acre) in Okinawa Prefecture for the minimum, while the average price per tan is 416 yen ($846 per acre) for the best rice fields, 167 yen ($340 per acre) for the poorest, and 280 yen ($569 per acre) for the ordinary grade, the last figure showing a decrease of 27 yen ($55 per acre) as compared with corresponding period of 1913.

Korean Cattle for Japan.—The Japanese Government will ask the Diet for $40,000 to erect a cattle quarantine station at Tsuruga. This has been brought about by the efforts of two or three men who desired to import Korean cattle into Japan. It is thought probable that, when the new quarantine station is opened, a regular service will be inaugurated between Tsuruga and the ports on the east coast of North Chosen.

Philippine Sugar Central.—Isabela, Occidental Negros, is to be the site for the Government P2,000,000 sugar central. This means that the Isabela Milling Company, Inc., representing at present 42 hacenderos, with 18 more who will probably affiliate, the 42 controlling approximating 5,000 hectares (12,500 acres) of land already in cane, will have a modern milling plant with a capacity of 1,000 tons of cane per day, and expected to turn out from 110 to 125 tons of 96 degree centrifugal sugar every 24 hours. The site chosen by the Central Sugar Board is on the Binalbagan River, 18 kilometers from the port of Hinigaran, to which a narrow gauge railroad line will be constructed. Other projects under consideration were those of Maao and Silay in Occidental Negros and Pontevedra, Capiz.

The recent visit of the board to the named districts developed the fact that all the projects were excellent.

The board found itself having to select out of four good projects the one most deserving of immediate government aid. Each project was examined from every possible point of view and it was decided that Isabela presented the project where more benefit could be given and which was as fully sure of success as any of the others.

The determining factors were: least engineering difficulties; perfect unanimity between hacenderos; most good to be done by raising the quality of sugar from its present low quality to a product readily saleable in the world's markets.

The board stated that the other three projects were by no means rejected and should the board find itself with additional funds it will be pleased to give them further and full consideration. An open specification is in the course of preparation and will be published in a few days. The present intention of the board is to have the central factory built and operating in the Isabela district by December 15, 1916.

Philippine Sugar Crop.—According to reliable crop forecasts, believed to be made by experts who have gone over the district, 4,000,000 piculs of sugar will be harvested this season in the islands of Negros and Panay. During the 14 years residence in Negros, of an American hacendero, he had never known or heard of a larger crop than the present acreage, and according to statements made by other hacenderos who have resided there for forty years, never before has it been more difficult to obtain money for harvesting crops than at the present time.

The exportations of sugar from this district in July were 56,932 171 kilos of sugar, valued at P5,847,451, shipped according to value, as follows: to China P2,240,785; to the United States, P3,365,776; and to Japan, P239,900.

It is interesting to note that for the first seven months of this year the collections at this port have amounted to P1,139,526.22, while the collections for the same period of last year showed only P751,714.95, an increase for this year's period of P287,811.38.

P. I. Province Aided.—The P35,000 appropriation made recently by the Philippine commission for the Mountain province, according to an official announcement is to be distributed in the following manner: For the purchase of seeds and plants to be apportioned among the various rancherios suffering from the recent drought, P10,000; For the salaries of additional teachers, P7,500; For the payment of sanitary inspectors and the purchase of medicines, P5,000; For irrigation and other general expenses, P12,500.

ALPHABETICAL LIST OF ADVERTISERS

Advertiser	Page
Albany Grease	57
Allen & Co. Ltd., Edgar	58
American Locomotive Co.	13
American Rolling Mill Co.	31
American Tool Works Co.	5
Andersen, Meyer & Co.	2
Anderson & Co., Wm. H.	49
Avery, Ltd., W. & T. Soho Foundry,	3
Avonside Engine Co. Ltd.	40
Babcock & Wilcox, Ltd.	49
Baldwin Locomotive Works.	17
Bank of China	9
Bank of Communication	8
Bank of the Philippine Islands	Cover
Bohler Bros. & Co., Ltd.	56
British Aluminium Co., Ltd.	54
Burrell & Co., Ltd	60
Chinese Government Railways of China	18,22,23,26,27,30
Chosen Railway	29
Cia. Trasatlantica.	55
Commercial Car Co.	51
Commercial Press, Ltd.	43
Craig & Co. A. F	2
Deutsch-Asiatische Bank	7
Dollar Co., Robert	19
Drysdale & Co., Ltd.	44
Escher Wyss & Co.	3
Evans, Joseph, & Sons	57
Fairbanks Morse & Co.,	53
Far Eastern Review, The	44, 57
Firestone Tire & Rubber Co.	41
General Electric Co.	35
Germinal Cigar & Cigarette Factory	4
Gest. G. M.	7
Goulds Manufacturing Co.	21
Green Island Cement Co., Ltd.	52
Harvard Medical School	56
Hasler Telegraph Works	53
Haywood Bros. & Eckstein.	56
Hongkong & Shanghai Banking Corporation.	6
Hongkong & Whampoa Dock Co., Ltd	10
Hurst, Nelson & Co. Ltd.	34
Ice Trade Journal Co.	43
International Banking Corp	6
Jardine, Matheson & Co.	46
Jones & Lamson Machinery Company.	40
Johnson-Pickett Rope Co.	42
Kailan Mining Administration	Cover
Kellogg Switchboard & Supply Co.	21
Lehigh Car, Wheel & Axle Works	53
Lidgerwood Manufacturing Co.	12
Lima Locomotive Works.	14
Mather and Platt, Ltd.	15
McConway & Torley Co., The	37
Mitsu Bishi Dockyard & Eng. Works	10
Morse & Son, (Inc.) A. J.	44
Municipal Engineering and Contracting Co.	53
Mustard & Co.,	55
Norton & Harrison Co.	58
Olsen & Co., Walter E.	Cover
Owen Bros	3
Pacific Mail S. S. Co.	21
Pekin Syndicate, Ltd.	16, 47
Pienlo Railway	26
Priestman Brothers, Ltd.	12
Pyle-National Electric Headlight Co.	19
Railway Signal Co., Ltd.	56
Reddaway & Co., F.	Cover
Rendrock Powder Co.	12
Royles Limited	39
Schuchardt & Schütte.	43
Schmidt Superheating Co., The.	12
Shanghai Dock & Eng. Co., Ltd., The	11
Shanghai Machine Co.	34
Shanghai-Nanking Ry.	28
Shewan, Tomes & Co.	45
Siemens China Co.	50
Simmons Manufacturing Co., The.	55
South Manchuria Railway Co.	24
Standard Oil Co., of New York	20, 32, 36, 54, 58
Stevenson & Co., Ltd., W. F	44
Strong Machinery Co., Frank L.	18
Symington Co., T. H.,	15
Trimont Manufacturing Co.	43
United States Steel Products Co.	33,38,42,48,51,54
Vulcan Iron Works.	57
Western Electric Co.	4
Westinghouse Electric & Manufacturing Co., The	1
White & Co. J. G.	Cover
Worthington Pump Co., Ltd.	5
Yokohama Specie Bank, Ltd.	7
Ynchausti & Co.	44

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(Please mention this journal)

Air Compressors
General Electric Co.
Westinghouse E. & M. Co.
Worthington Pump Co., Ltd.

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Anderson & Co., W. H.

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Olsen & Co., Walter E.

Tools
American Tool Works Co.
Shanghai Machine Co.
Shanghai Dock & Engineering Co., Ltd.

Tool Steel
Bohler Bros. & Co. Ltd.
U. S. Steel Products Co.

Towers Cooling
Worthington Pump Co., Ltd.

Track Gauges and Levels
Fairbanks, Morse & Co.

Tramcars
Hurst, Nelson & Co. Ltd.

Tramway Equipment
Dick Kerr & Co. Ltd.
Westinghouse E. & M. Co.

Tramway Supplies and Specialties
Anger Mfg. & Supply Co., Ltd.

Transformers, Electric
General Electric Co.

Trucks
Commercial Car Co.

Tube Mills
Edgar Allen & Co.

Tungsten Steel
Bohler Bros. & Co., Ltd.

Turbine Pumps
Worthington Pump Co., Ltd.

Turbines, Steam
General Electric Co.

Turbo-Blowers
Westinghouse E. & M. Co.

Turret Lathes
Jones and Lamson Mchy. Co.

Valves
Shewan, Tomes & Co.

Vanadium Steel
U. S. Steel Products Co.

Vegetable Oil Plants.
A. F. Craig & Co.

Ventilating Apparatus
Shewan, Tomes & Co.

Water Softeners
Babcock & Wilcox Ltd.

Waterworks Equipment
Edgar Allen & Co. Ltd.
Worthington Pump Co.

Weaving Machinery
Shewan, Tomes & Co.

Weighing Machines—Weigh Bridges
W. & T. Avery, Ltd.

Welding Outfits, Electric Arc.
General Electric Co.

Windmill
Fairbanks, Morse & Co.

Wireless Telegraph Apparatus

Wire Nails
U. S. Steel Products Co.

Wire Rope and Cables
Bohler Bros. & Co., Ltd.
U.S. Steel Products Co.

Wood Working Machinery
American Tool Works Co.
Defiance Machine Works
Shanghai Dock & Engineering Co., Ltd

Wrenches
Trimont Mfg Co.

THE FAR EASTERN REVIEW
COMMERCE :-: ENGINEERING :-: FINANCE

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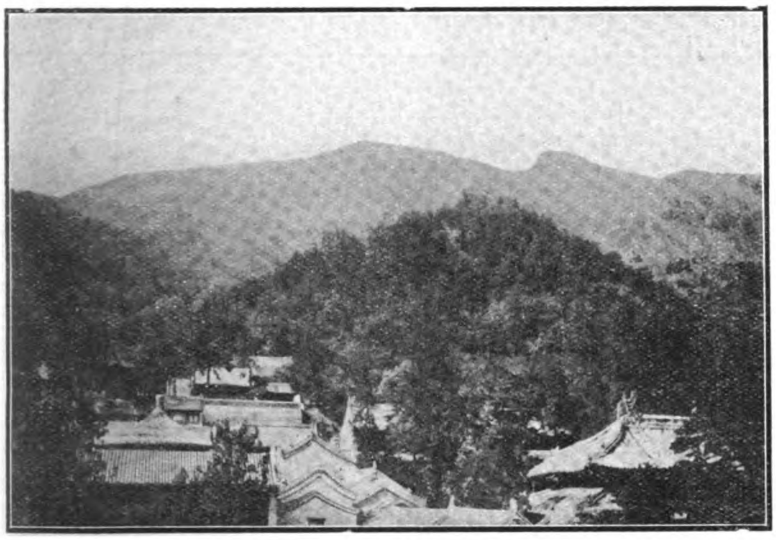
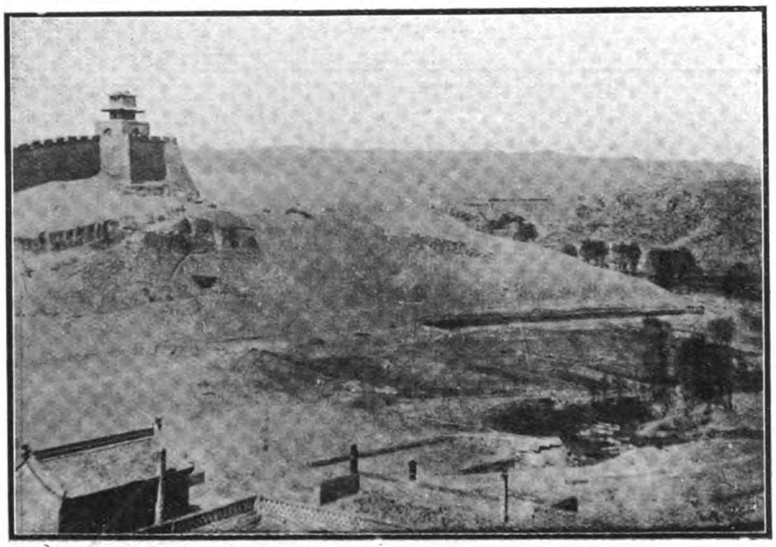
THE DEFORESTATION OF CHINA



PEKING—WESTERN HILLS. TEMPLE PRESERVE CONTAINING OAK AND PINE, EXCELLENT FOR OBTAINING SEED FOR REFORESTING DEPLETED AREAS

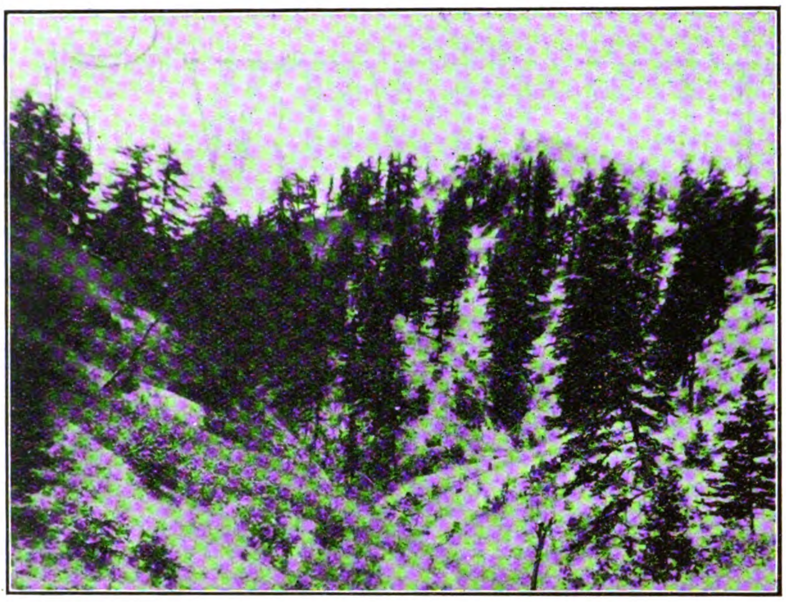


YULIN—CITY WALL. SURROUNDED BY SAND BLOWN FROM ORDOS DESERT

In the last issue of this journal it was mentioned that the Chinese Minister of Agriculture, Commerce and Industry (Mr. Chow Tze-chi) intended to adopt a definite programme of afforestation throughout the country. This is one of the most important steps being taken by the Government, and realising the necessity for expert assistance the services of a qualified man have been secured. Mr. Sherfessee, the Director of Forestry in the Philippine Islands, has been engaged, and will inaugurate a policy for the Government.

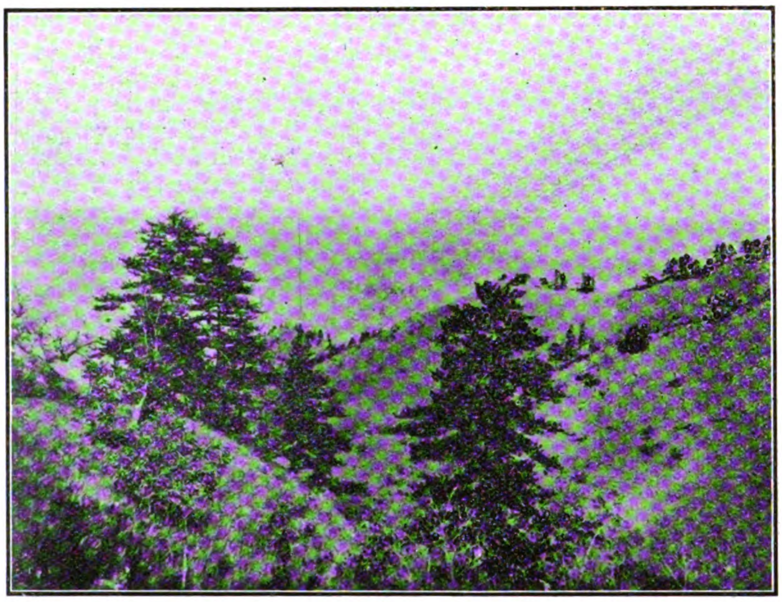
In connexion with the denudation of China's forests and the consequent devastation of large areas of territory it is interesting to refer to the comments made by Mr. W. Purdom, (late of the Arboretum, Royal Botanical Gardens, Kew, and Exploration on Forestry Research in Northern China (Chihli, Shansi, Shensi, and Kansu) for Messrs. Veitch, London, and the Arnold Arboretum, Harvard University, Boston), whose research work in China has been of a very valuable order, and whose observations deserve the closest consideration. Writing in the *Peking and Tientsin Times* in the last quarter of 1912 Mr. Purdom endeavoured to stir the Central Government and the provincial officials to a realisation of the grave necessity that existed for immediate attention to afforestation in China. Extensive travelling in the northern provinces on forestry and botanical research bore in upon him deeply the necessity for a scheme of afforestation, and though he felt the time was then ripe for pointing out a few of the drawbacks attendant upon the wanton destruction of what must have been fine old forests, his pleas for action fell upon deaf ears. Mentioning that the serious influence of the loss of these forests on the climatic conditions of the country need hardly be pointed out, he went on to describe the effect upon the general contour of the land from erosion, the depredations made by extension of river beds from silting and the exposure of crops to full climatic conditions, and urged that these should engage the serious attention of those interested in the welfare of the agricultural population. Then Mr. Purdom observed: "Fuel is notably scarce in China, but even this does not excuse the wholesale scraping from mountain sides of every particle of vegetation, a matter of compulsory daily occurrence in many provinces which results in the extinction of all soil binding plants, to say nothing of the many fine species of trees and plants thus lost to the world. This habit is particularly galling when one thinks of the effect the development of the country's immense coalfields would have on this question of fuel.

"Here and there remnants are to be found of past forests, consisting mainly of pine, fir and larch, and judging from some of the specimens seen, excellent timber for almost any purpose must once have been available. Particularly in the Weichang district, in Chihli, is this apparent. There appears to be in that neighborhood neither system of felling trees nor any restrictions as to the amount. Thousands of fine poles were observed rotting in the grass, poles, too, of a size suitable for holding telegraph wires. In many parts of Shansi, Shensi, and Kansu similar denudation exists, but there is no reason why, with organized effort, many parts, now barren waste, should not be again afforestated. Between Jehol and Weichang, too, erosion is hard at work; deep gullies forming in the hillsides every year, the soil and sand thus displaced finding their way to the valleys, widening

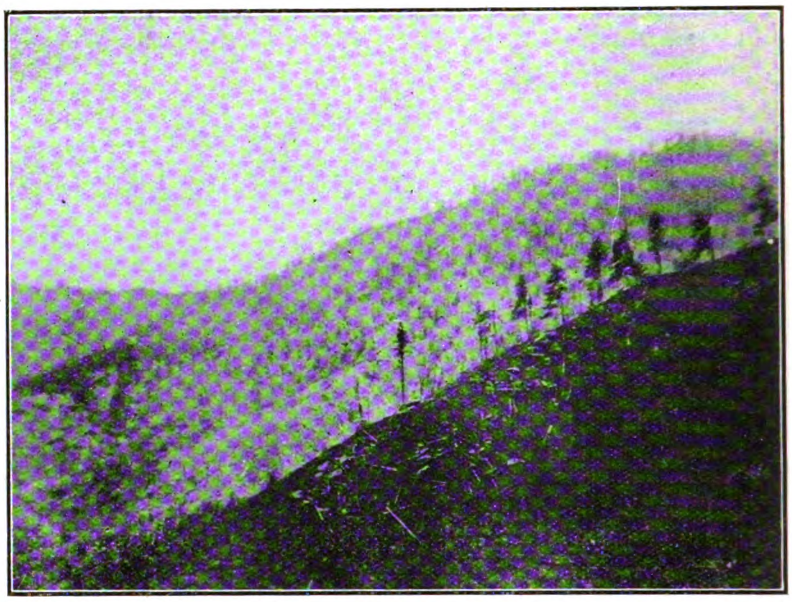


WEICHANG—SHOWING GOOD SIZED TREES WHICH ARE GRADUALLY DISAPPEARING

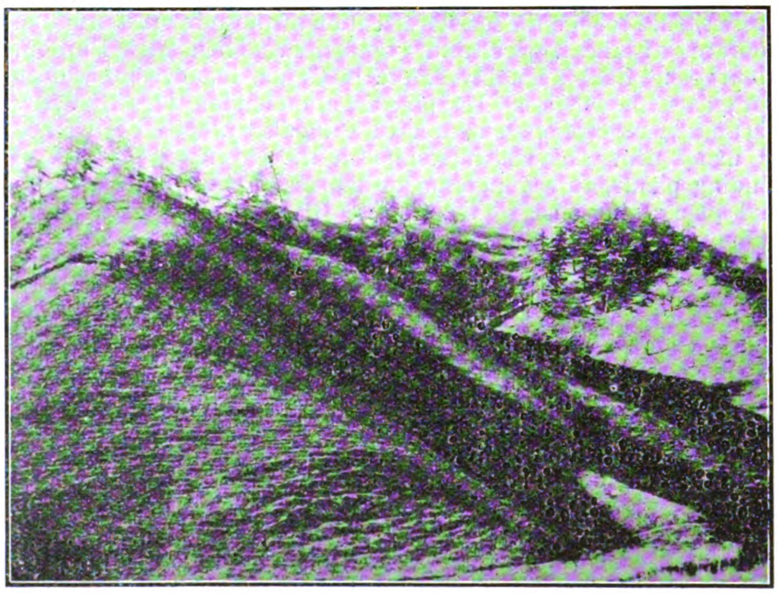
NORTH WEICHANG—VIRGIN FOREST



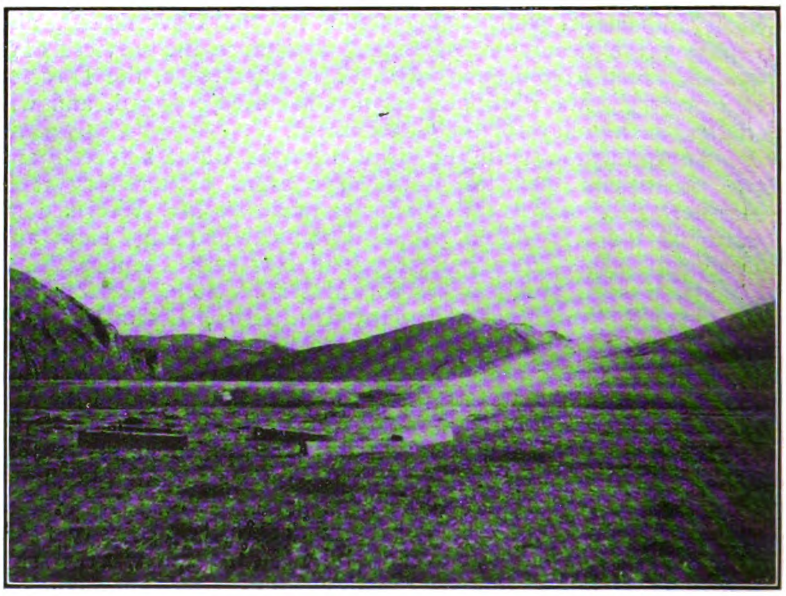
WEICHANG—IN THESE HILLS EXCELLENT PINE AND SPRUCE ARE RAPIDLY DISAPPEARING



WEICHANG—DEVASTATION IN LARCH FOREST



WEICHANG—RIDGED EFFECT OF WEATHER ON GROUND AFTER REMOVAL OF WOOD. WILL ULTIMATELY BECOME MOVING SOIL OWING TO LACK OF ROOT BINDING PLANTS



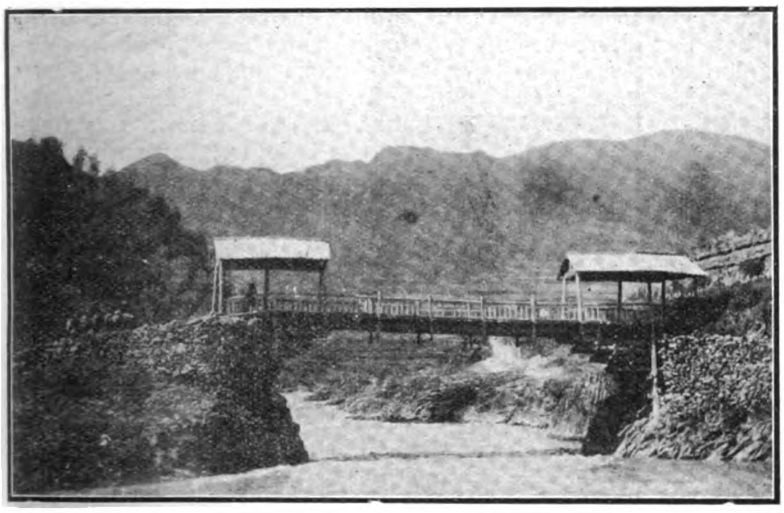
WEICHANG—ONCE WOODED COUNTRY. (NOTE FINE BLOCKS OF TIMBER IN FOREGROUND)

out the river beds, hiding all trace of roads in places, and making cultivation of crops an impossibility, except on the slopes of the hills.

"Apart from all these considerations the lack of timber will seriously affect the development of the country in such matters as extension of railways, development of mines and building of bridges both from the point of view of cost and facility of carrying out these enterprises. Many small local industries, e. g., the table making in Jehol, and the ornamental work in walnut at Tsinchow in Kansu, must in time suffer from want of material, though, beside the main issue, this aspect of the matter is comparatively unimportant.

"There is, however, another serious factor in the denudation of land which will one day have to be considered—the encroachment of sands from the northern deserts. While on a visit to Yulinfu, in north Shansi, the writer was particularly struck by this. For many li south of the Great Wall sand prevails, choking out all signs of vegetation. Here the planting of soil binding plants would prove of the greatest possible benefit, and even further south on the great Peking plain the same policy could be used with a view to protecting the region from the heavy winds which sweep across it in spring.

"Without making any pretension to laying down a complete and exhaustive forest policy, the carrying out of which would naturally be a somewhat lengthy process since the people need

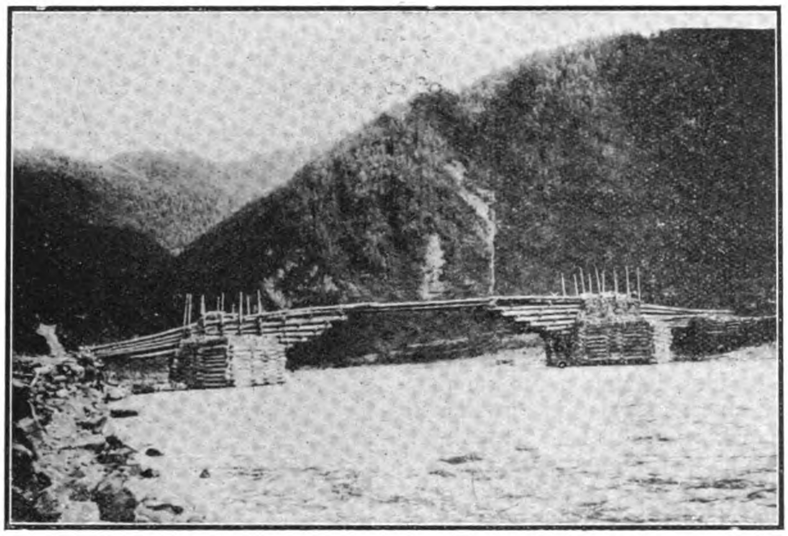


KANSU—BRIDGE BETWEEN CHONE AND MINCHOW. (NOTE LONG SPAN OF TIMBER)

educating in the matter, a few suggestions are offered for immediate use which need involve but little outlay. In many parts of the country deep gullies are forming each year as a direct consequence of the denudation of the vegetation. By judicious encouragement of the people of such districts, grasses and all brushwood growing near the gullies, instead of being cut away, could be allowed to remain and the roots would help to bind the soil together. Following this the planting of the common willow, a very simple operation well known to the Chinese, would further stop the rush of soil to the valleys. To deal with valleys on a large scale, the deepening of rivers, making of embankments and more extensive planting of a variety of trees are of considerable importance in draining the land and restricting the rush of water during heavy rains. Once the native could be made to realise how much more land for cultivation would thus be placed at his disposal even work on this large scale should be a comparatively simple matter, and the numerous prisoners now uselessly confined might be thus employed with great gain to the country.

"Every one who has travelled over the great Chinese plains and felt the discomfort, alike in summer and winter, from the intense heat untempered by shade or the sweeping bitter winds unchecked by 'shelterbelts,' must acknowledge that if the sides of the tracks crossing the country could be planted with such a tree as the easily attainable, quickly growing poplar, something would have been done towards mitigating these circumstances. Not only would this affect the travellers' personal comfort, but the crops growing between the belts would also have the benefit of protection. Most of the hills bordering the plains are devoid of plant life; the soil has become baked by the sun and time has rendered it sterile. Herbaceous or shrubby vegetation on these heights would provide shade, and the soil would retain moisture for a much longer period, while, at the same time, the relative humidity of the atmosphere would be increased. Again, the physical enrichment of the soil would be greatly enhanced because of the decayed vegetable matter formed by flowers, leaves, fruits, etc., during the fall.

"The streams, flowing down the ravines of the great mountain systems to join the main rivers, are silted up, particularly at the confluence of parent river and feeder, and shoals are here formed many acres in extent, thus unfitting valuable land for cultivation. In addition to this, water enters the main stream so suddenly that floods are frequent and occur without much warning, great damage being thereby done to crops in the low-lying land towards the river mouths. If an irrigation system were introduced, or rather a system of irrigation and drainage combined with planting along the canal banks, two purposes would be served: the country would be protected from sudden inundation, and much land reclaimed. The roots of trees along the canals would bind the banks and prevent shifting while the thick leaf surface would provide shelter. Land adjoining desert

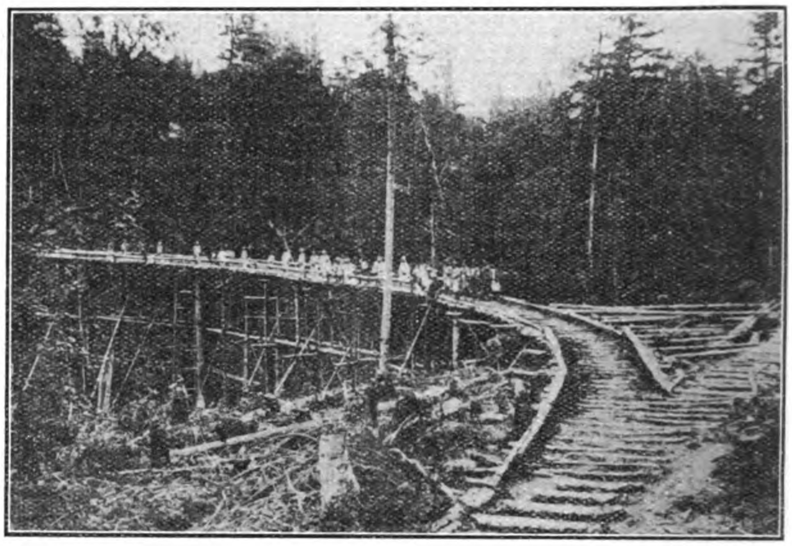


KANSU—BRIDGE CROSSING TOW RIVER NEAR CHONE. (BUILT OF TIMBER GROWN IN ADJOINING FORESTS)

areas, now covered with the ever shifting sands, could be reclaimed for agriculture at the expense of a little time and trouble. The first object is to fix the moving sand, which in many places forms large waves in the direction of prevailing winds and covers all trace of plants on virgin soil. In dealing with such parts fences or palings should be inserted in the sand to form a break, and in the enclosure formed by these, sand sedges and other native soil binding plants would have a chance to establish themselves, and ultimately hold the sand intact, after which useful trees and shrubs might be introduced, and thus a natural fence or break should be formed.

"Another point needing immediate attention is the amount of wood felled. It should be strongly impressed upon the people of the districts where remnants of woods remain, that a certain amount of stock trees should be left untouched each year, as this system would provide for future scientific forestry operations, and these reserves would give the annual supply of seeds requisite for restocking depleted areas. In the hills west of Peking the temple preserves contain fine species of pine, oak, and chestnut with an abundance of low soil binding plants In northern Chihli there are excellent larch, fir, oak, pine, birch and elm, and northern Shansi shows scattered woods. The provinces of Shensi and Kansu, especially in the Tsinling Range district, have large quantities of medium sized trees, but unfortunately there is no restriction in the cutting of timber and the woods are literally mown down, few, if any,

LUMBERING IN YALU RIVER DISTRICT



CONSTRUCTING LOGGING RAILWAY

specimens being left to act as stock-trees for future use. The above-named provinces would furnish sufficient material for a good start to be made in the restocking of the once extensive forests of north China, while Yunnan, Szechuan and similar provinces would form a basis for the south and west.

"Having referred to a few of the most important dangers arising from the absence of a forest policy as it affects the country physically, and simple remedies for the same, a word may be said in favour of forest utilisation from an economic standpoint. The industrial uses of wood are too numerous to mention, but in building, railroad making, and shipbuilding it stands pre-eminent among raw materials, besides having a unique position as regards implement making. This fact alone should spur to action those thinking of a country's advancement, particularly such a country as China, which has now before it the hopes of a bright and prosperous future, but which has in the past paid so little attention to a vast source of wealth—its grand old forests. The numbers of local industries which would spring to life if a permanent supply of wood could be relied upon from forest areas can hardly be calculated, and there is no reason to doubt that a large export trade in timber would be possible for the same reason. Railroad extension and communication by telegraph could be rapidly made if timber were easily available, and the linking up of the provinces would do much to help the union of China and mitigate the local prejudices among the lower classes, which is one of the great factors in the hindrance of the labours of those who are bent on making the most of a country of endless variety and inexhaustible supplies of most economic products. The better housing of the people would follow naturally, since abundance of building material would result in loftier and more healthy dwellings being set up, while mine exploitation would receive considerable impetus. Of minor forest products mention may be made of bark for tanning purposes, turpentine and resin from the pine and fir trees, oil from the various nuts and fruits, ornamental woods for furniture making, medicines from such plants as ginseng, forest herbage for the maintenance of domestic animals, while the shrubby brush growing under high trees would produce a continuous supply of fuel.

TIMBER RAFTS ON UPPER YALU

"Enough has been said to show that the country would benefit physically and financially from attention to this afforestation question while the fact that increasing quantities of timber are yearly required all over the world, that prices are rising and will rise, owing to this scarcity and the present unsound basis of the forestry question in most countries, behoove a land possessing China's natural advantages for meeting this need and at the same time extending her own influence by the establishment of industrial and commercial prosperity, to consider whether this is not one of the most important factors in a policy of 'Forward.'"

YALU TIMBER MARKETS

Yalu timber has for its principal markets Tientsin and Shantung, local demands in South Manchuria, of Yalu timber forwarded from Antung by railway during 1913 being 6,105 tons and 1914 demand, 6,427 tons. No material change appeared in the figures themselves, but the sphere of distribution in South Manchuria was enlarged.

The destinations of the consignments comprised the following stations which received more than 300 tons:

	1913	1914
Mukden - - -	2,813	970
Fushun - - -	870	792
Liaoyang - - -	671	474
Yingkou - - -	376	397
Lienshankuan - -	256	1,088
Wulungpei - - -	249	78
Penchihu - - -	162	1,091

The Amount of timber rafted down the Yalu to the Yalu Timber Co. and sold during 1913 and 1914 follows:

	Arrivals by rafts	Sold
1913....	558,726 pieces	652,651 pieces
1914....	2,725,949 "	1,467,783 "

Of the above, 34,757 pieces were shipped to Shantung by steamer. The amount exported by junks is not available.

REVIVING THE MONARCHY IN CHINA

Events in connection with the movement to re-establish the monarchical system of government in China have moved with remarkable rapidity. Those who opposed the movement at its inception apparently misjudged public feeling on the question. They believed that the movement had so little genuine support that it could be killed by ridicule. How mistaken this view was has been shown by the constantly augmenting stream of petitions from all parts of the country urging the Council of State to take the necessary steps to re-establish the monarchical system of government. It is noticeable that many of the men who were prominent during and shortly after the 1911-12 revolution, and who from one cause or another have taken no part of late in public life, have resisted all the efforts made to induce them to declare against the movement. As far as it is possible for foreigners to judge the opinion seems to prevail that there is a better prospect for the maintenance of internal order if legal sanction be given to the monarchical system.

Since the publication of the last issue of the FAR EASTERN REVIEW there has been no slackening of the strong disposition shown to endeavour to obtain an expression of the people's will at the earliest possible moment. It was recognised that whatever decision might finally be reached, uncertainty was inimical to the country's interests, and the Council of State, therefore, submitted to the President on September 20 the suggestion published in the last issue, which was an indication that the Council realized that the country was anxious for a speedy settlement of the question.

The President replied to the suggestion in the following terms:—

"I beg to acknowledge receipt of your despatch stating that after receipt of petitions from public organs and private individuals in various places on the subject of the form of state (Kuo-Ti) you referred the same to a Committee for investigation; and that acting upon the recommendation of the Committee the House has resolved that since the form of state is one of the most important subjects in the Constitution and its solution rests with the Citizens' Convention, the President should convene the Citizens' Convention within the present year or devise some other proper and adequate means to consult the will of the people, etc.

"The responsibility of passing the Constitution devolves upon the Citizens' Convention and as the solution of the present question concerns the foundation of the nation, therefore it is imperative that we should proceed with special care. We have already promulgated a mandate setting the 20th day of the 11th month as the date for the final election of the members of the Citizens' Convention. When the final elections throughout the country shall have been completed, the Citizens' Convention will be convened and formally inaugurated. We shall then be able to secure and ascertain the proper opinion of the people.

"Besides making the above reply, we have referred the matter to the Bureau for the Preparation of the Citizens' Convention."

In many quarters it was felt that it would be inexpedient to delay the decision as suggested by the President, and many petitions were sent to the Council of State urging that a special popular body should be convoked to which the question of the form of government would be submitted. One petition signed by over ten thousand members of the Chou An Hui (Society of Peace) read in part as follows.—

"In the suggestion of Your Honourable House to the President, we find, to our surprise, that undue emphasis is laid on the Citizens' Convention and in the President's reply to the Tsan Cheng Yuan, the Citizens' Convention is also specially mentioned. Though it must be admitted that in making this suggestion, the House has acted not without prudence, we are in doubt whether it is wise to delay thus the settlement of such a vital issue. This, we think, is not the proper way to tranquilize the mind of the people.

"The change in the form of state is a question which falls within the limits of politics rather than those of law. If the Government adheres to the idea that the question must be settled on a 'legal basis,' we suggest that too much importance is being paid to considerations of 'formality.' Moreover, the Citizens' Convention is, according to the provisions of the Constitutional Compact, an organ vested with the power to pass the new Constitution of the Republic; and if it is called upon to change the Republic into a monarchy and elevate the President to the Throne we wonder how the Convention will justify itself for doing things which are certainly beyond the ambit of its power. The situation would indeed strike the world as immeasurably ridiculous.

"Now if the Citizens' Convention also holds to the letter of the law, while at the same time trying to satisfy the 'desire of the people,' it may be compelled to adopt such absurd systems of government, as a Hereditary Presidency or 'the Republic with a Monarch,' suggested in certain quarters. The adoption of such 'neither-mule-nor-horse' system, even if the same holds for the purpose of satisfying the 'desire of the people,' would pillory this country before the world as an object of laughter. This Society is opposed to all the suggestions. The object of our search is Constitutional Monarchy. According to our idea, the new ruler must have the name as well as the actual power of a monarch; and he must bear the same title vis-a-vis both the people of his own country and Foreign Powers. We contend that the Citizens' Convention cannot accomplish the desired end because the same is beyond its powers.

"We deem it therefore inexpedient to submit the question to the Citizens' Convention for solution; because, in the first place, to do so would involve delay and, secondly, the Convention itself has not such a 'broad latitude of power' to effect the change of Kuo-Ti. We beg to inform the House that we cannot acknowledge the method which the House has suggested to the President and endorsed by him as the proper means of solving the problem. We hereby request the House further to discuss the question and to suggest the organization of another popular organ, with large and adequate powers, at an earlier date than the convocation of the Citizens' Convention. To this organ, the great question should be submitted for solution. After the question is definitely settled, the Citizens' Convention should be convoked to discuss and pass the new Constitution. This course will secure an effective solution while at the same time the spirit of the law will be strictly observed. The mind of the people will then settle to peace and a great blessing will be vouchsafed the people and the country."

This and other petitions were considered at a session of the Council of State held on September 28. The petitions were submitted to a committee consisting of Messrs. Liang Shih-yi, Wang Yu-lin, Sze Yu, Chen Kuo-hsiang, Chiang Han, Wang Shiu-lien, Wang Hsu-shan, and Liu Yueh-tseng for investigation. This committee on September 30 passed a resolution recommending the ascertainment of the people's will by the provincial balloting system. A bill was drafted in accordance with this resolution.

On Saturday, October 2, a meeting of the Tsan Cheng Yuan was held and the draft bill was read a first time. Mr. Liang Shih-yi, the Chairman of the drafting Committee, pointed out that, according to the bill the number of members constituting the Citizens' Representatives would aggregate over 2,000. After some discussion the bill was submitted to a Committee of nine members for examination. It is interesting to note that Gen. Hsu Ko-cheng, who was in command of the revolutionary troops which captured Nanking from the Imperialists in November, 1911, was appointed Chairman of this Committee.

The Committee met on October 4th, and amended the draft bill to include representation for over-seas merchants and Mohammedans. A few minor modifications were also made to facilitate balloting and to expedite the arrival at a decision on the question.

The Tsan Cheng Yuan met again on October 6th and the bill was passed through all its stages, and at about 3.30 p.m. was declared unanimously passed. At these meetings, it must be mentioned, Vice-President Li Yuan Hung, Chairman of the Tsan Cheng Yuan, was not present, Mr. Wang Ta-Hsieh, the Vice-chairman, presiding.

When the bill was carried it was decided to forward it, with the petitions received by the Council, to the President under a covering despatch. The latter reads as follows:—

In requesting the promulgation of the Law on the Organisation of the Convention of Citizens' Representatives, we have the honour to state that, in compliance with the repeated petitions of the various Bodies representing the Provinces, Special Administrative Areas, Inner and Outer Mongolia, Chinghai, Mohammedan Regions, Inner and Outer Tibet, the Banners' People, Princes, Dukes as well as Chambers of Commerce, Educational Societies and Oversea Merchants, respecting the change of the form of State a decision was made by this House which was forwarded to the Government together with the 83 petitions submitted, suggesting that the fundamental solution of the issue raised by the Petitioners should be effected by the Citizens' Convention whose convocation should be hastened or by other proper and adequate means to ascertain the will of the people. We were profoundly impressed by the wisdom

of the Great President who envisaged the matter from a broad point of view and seized the "happy medium" as evidenced by his desire to wait and submit to the real will of the people as ascertained by the final balloting of the Citizens' Convention and to limit any solution within constitutional bounds.

Since the transmission of the 83 petitions to the Government, however, we have received further petitions from Shen Yun-pe and other representatives of the United Society of Petitioners of the whole country; Feng Lin-pei and other representatives of merchants of the whole country; A-mul-rin-kwei and other representatives of the "Public people" of the whole country; Wang Kwan and other representatives of the Mohammedan Mutual Progressive Society; the United Society of the Mohammedan Religion and Mohammedan Race and the Eight Mohammedan Regions; Cheng Cheng-to, representative of the Mohammedan Tulfan Harmi; Teng Hui-yuan, representative of the Aboriginal Tribes in Western Yunnan; Yang Tseng-ping, the representative of the entire body of Princes and Dukes of Sinkiang, Mongolia and Mohammedan Regions and the Manchurian and Mongolian garrisons at Ninghsia; Hun Yu-ting, representative of the Social Progress Society; Ting Wei-tung, representative of the Educational Circles of Peking; Hsu Chih-tao, representative of the Leading Chamber of Commerce of Kweichow; Yang Tu, representative of the Chou An-hui; the United Society of Chambers of Commerce of the whole country; Yu-feng-hou and other money-merchants. These Petitioners are unanimous in the opinion that since China has been for over two thousand years a monarchy, the people have long been accustomed to submit to a "one-man" rule, that the change for the republican form of State after the year of Hsin-hai (1912) was not in accordance with the requirements of the then existing conditions, thus resulting in the unsettled state of the mind of the people and the uncertain standing of the State. The reason is that since, according to the republican system, the office of the President has to be changed constantly, no continuous policy can be guaranteed on the part of the Government and no definite plan can be laid down on the part of the people. In addition, there is also the danger of the ambitious, unduly aspiring to the Highest position, thus resulting in sowing the seeds of rebellion, which would occur every few or a few scores of years.

Our country has also seen many rebellions; and as the vitality of the nation has not recovered, the improvement of the administration is urgently needed. As the people are greatly in need of stability, the only method is to adopt quickly a constitutional monarchy with the object of securing a permanent peace and continuous government so that law and administration may mutually assist each other. Thus may the foundation of the nation be strengthened and the influence of the State given a new life. There is no other course in the eyes of the "entire body of the people of the whole country" after careful consideration. Even many recognised foreign scholars of politics hold that Republicanism is not suited to China and are in favour of a constitutional monarchy. Hereby is fully shown in which direction the desire of the people turns and where truth lies. They claim that at the same time that the cry of the people for the actual appearance of a constitutional monarchy is urgent and earnest, because it is the best course by which the country may be saved. It is evident that the question should be immediately solved but the convocation of the Citizens' Convention will take some time besides this particular body is for the purpose of settling the Constitution only. A constitution cannot be decided until the question of the form of State is settled. The great question of the nation cannot, therefore, be solved unless an unbiased organ be speedily formed for the ascertainment of the "real will of the people."

In spite of the fact that we were reluctant to make any hasty proposal since we have already suggested methods and the Great President has also decided upon the procedure to follow, we cannot ignore the "united appeal of the people," repeatedly uttered; and in consideration of the necessity of respecting "the will of the people" this House has again brought up the subject for discussion. As a result we are now of the opinion that since this is a question of extraordinary importance it should not be solved by ordinary methods. The State is the State of the people; and the form of State should be adopted or rejected according to the wish of the people: and as the will of the people is now for a speedy solution, it becomes our duty to yield to the desire of the people and place the question above everything else. This is in accordance with the proposal last made by this House that efficient and adequate means may be devised to ascertain the real will of the people, especially as the Great President has uttered the warning that too much care cannot be exercised in settling the "great fundamental question" of the nation. Article 2 of Chapter I of the Constitutional Compact provides that the sovereign rights of the nation are vested in the entire body of the citizens; and since nothing is greater than the rights that form the State, the same should be settled in accordance with the will of the entire body of the people.

We therefore decide that the name of the body should be called the Convention of Citizens' Representatives, which shall be drawn from the members elected by the successful candidates of the primary election of the Citizens' Convention, for the purpose of settling the question of the form of State. In this way all the Provinces, special Administrative Areas, Manchuria, Mongolia, Mohammedan Regions and Tibet shall have representatives therein. Only an organ thus organised can be termed an unbiased organ of the people and only opinion thus secured can be called "the real will of the people." For every part of the country will be represented and the decision of the entire body of the people will be secured. Thus it is seen that it is an improvement on the Citizens' Convention. In accordance with Article 31 of the Constitutional Compact, therefore, we held a meeting on the 6th day of the tenth month and passed the law on the Organisation of the Convention of Citizens' Representatives after three readings; and as the entire body of the country are in a state of exceeding haste to see the solution of the question of the form of State, we hereby submit to you the text of the said Law together with the petitions and ask that the Great President shall speedily promulgate the same.

Law on the Organization of the Convention of Citizens' Representatives

Art. 1. Respecting the petition of the entire body of citizens of China concerning the question of the form of State, the question raised shall be decided by the Convention of Citizens' Representatives in accordance with the collective wish of the entire body of the citizens of the country.

Art. 2. The election of members to the Convention of the Citizens' Representatives shall be effected by the system of initialled single balloting. Those who secure a majority of votes shall be elected.

Art. 3. The Convention of Citizens' Representatives shall be composed of the following representatives:—

a. Each district in every province and special administrative area shall elect one representative.

b. Outer and Inner Mongolia shall elect altogether 32 representatives, two for each League.

c. Outer and Inner Tibet shall elect 12 representatives, six for each division.

d. Chinghai shall elect six representatives.

e. The Manchu, Mongolian and Chinese Banners (eight-each) shall elect 24 representatives, one for each Banner.

f. Sixty representatives shall be elected by the Chambers of Commerce throughout the country.

g. Thirty representatives shall be elected by recognised learned scholars.

h. Twenty representatives shall be elected by those who have done good service to the country.

Art. 4. The representatives of the citizens in the provinces and special administrative areas shall be elected by the successful candidates of the primary election for the Citizens' Convention.

Art. 5. The representatives of the citizens of Mongolia, Tibet, Chinghai and the Mohammedan Leagues shall be elected by the successful candidates of the single ballot election of the Combined Electorate of Mongolia, Tibet and Chinghai connected with the Citizens' Convention.

Art. 6. The representative of the Manchu, Mongolian and Chinese Banners shall be elected by the candidates elected by the princes, dukes, hereditary nobles and other hereditary personages of the Banners belonging to the Special Central Electorate in connection with the Citizens' Convention.

Art. 7. The representatives of the Chambers of Commerce of the whole country and Chinese residents abroad shall be elected by the candidates elected by the candidates of the single-ballot election elected by merchants, artisans and industrial men possessing capital of 10,000 dollars or more belonging to the Special Central Electorate in connection with the Citizens' Convention, or those Chinese abroad being merchants, artisans and industrial men possessing capital of $30,000 or more.

Art. 8. The representatives of those who have done good service to the country shall be elected by the candidates of single-ballot election elected by the voters who have done good service to the country belonging to the Special Central Electorate in connection with the Citizens' Convention.

Art. 9. The representatives of the recognised learned scholars shall be elected single-ballot election by learned scholars, graduates from High or Higher schools after completing a course of not less than three years, others having qualification similar to the graduates named above, teachers having taught for two or more years in High or Higher schools, belonging to the Special Central Electorate in connection with the Citizens' Convention. All voters as classified in and from Art. 5. to the first class mentioned in this article of single-ballot election shall be those who have been examined by the National Election Examination Committee and have been duly declared legally entitled to vote.

Art. 10. The following rules shall govern the Superintendents of Elections of the Citizens' Representatives.

1. In the provinces the respective superior officials shall jointly supervise the election as Superintendents.

2. In the special administrative areas the superior officials concerned shall supervise the election.

3. Respecting clauses b, c, and d, of Article 3, the Director-General of the Board for Mongolian and Tibetan Affairs shall act as Superintendent.

4. Respecting clause e, f, g and h of Article 3, Minister of Interior shall act as Superintendent.

Art. 11. The polling stations shall be situated at the places where the Superintendents reside. When the appointed date arrives, the Superintendent shall convoke the electorate by summoning those who have reported themselves, and the election shall then proceed

forthwith. The Superintendents of the provinces and other special administrative areas may, when circumstances require, empower the Magistrate to supervise the election of the Citizens' Representatives.

Art. 12. The date for the election of members to the Convention of Citizens' Representatives shall be fixed by an instructional mandate.

Art. 13. In settling the issue stated in Articles of this law by the Convention of Citizens' Representatives the initialled balloting system shall be adopted. The result shall be reported by the Superintendents concerned to the organ acting in the capacity of the Li Fa Yuan, which shall add together the votes of the whole country and ascertain what is the consensus of opinion of the Convention of Citizens' Representatives.

The balloting papers mentioned above shall be forwarded, after they have been checked, under sealed cover to the acting Li Fa Yuan.

The date of voting for the form of State shall be fixed by an instructional mandate.

Art. 14. The text of the question regarding the form of State to be balloted for shall be drawn up by the acting Li Fa Yuan, which shall first pass the same and then forward it to the Government, which in turn will forward it to the Superintendents, who shall announce the same on the balloting day to the representatives of the citizens.

Art. 15. Respecting the preparations in connection with the election and balloting as provided for in this Law, they shall be managed by the Bureau for the Preparation of the Citizens' Convention.

Art. 16. This law shall come into force on the day of promulgation.

On October 2 the draft bill was introduced to the Council of State, read the first time and then submitted to a committee for examination.

The regulations for the election of the People's Representatives were promulgated by Presidential Mandate on Friday, October 8, and immediately came into force. The arrangements for the elections were at once proceeded with and it is expected that by November 5 the various districts in China will have chosen their representatives. These men, upon whom is thrust the responsibility of deciding the fate of the Republic, will assemble in the various Provincial capitals about November 15 and they will vote on the question of whether a Constitutional Monarchy shall be established in China or not. If the majority decide upon a Monarchy a second vote will probably be taken as to whether President Yuan Shih-kai shall be the Monarch.

During the past two months many petitions have reached the Peking Government from various bodies and sections of the country, and as a matter of interest, and for purposes of record, we publish the following which were translated by the *Peking Gazette*:

Petition of the Military

PETITION of Wang Shih-chen, Minister of War, and most of the Military Commanders to the Great President requesting that means be adopted to consolidate the foundation of the Nation:

This Ministry has been in receipt of despatches and telegrams from the Chiang Chuns and military officers of the provinces, the various military organs of the Central Government and others to the effect that the republican system does not suit the circumstances of this Nation, and that during the past four years there have invariably appeared signs of decline and fall. Fortunately our Great President has always exerted his power and energy to save the Nation from the dangerous situation. It must be pointed out that alien pressure has grown stronger; and many things have caused us grave anxiety for the future. If no fundamental change be introduced, there shall never be permanent peace and wholesome government. A careful study of the situation of this Nation and the will of the people must at once convince us that the best method to be adopted at the moment is to supersede the present Republic by a Constitutional Monarchy, etc.; We, Shih-chen and others, have noticed that since the introduction of the Republic following the Revolution of Hsin-hai, societies and tangs have exercised an undue authority over the Nation. Violent characters have usurped power, allying themselves with *tutei* and bandits to inflict great misery upon the people. It is due to the Great President that internal disturbances have been suppressed by the Generals and troops sent by him and peace and order secured for the people. Lawless persons have made use of the doctrine of "liberty and equality" to entice the "stupid people." Officials, who are under the thumb of the bad gentry, have performed their work negligently. Military men have been at their wits' end to devise means for the defence of the Nation, and their lives have been constantly exposed to dangers of all kinds. Mandates and Regulations have not been obeyed and principles of morality have been "trodden under foot." It is not that the officials have not tried their best to enforce Laws and Regulations, but because the Laws and Regulations are not sound. We, Shih-chen and others, have carefully studied public opinion and observed the general situation of the time; and we have arrived at the conclusion that unless a fundamental solution of the problem is arrived at and the form of State be changed, there will always be trouble and disturbance. No progress will be made in administrative affairs, and the Nation will never become rich and powerful. Now the "hearts" of the military have united as if they were but one man and their opinions are alike. As they have all expressed their desires, it is not meet for us to tarry the communication of their request to the Great President. We hereby enclose a list of the names of military men in the provinces and the metropolis who have forwarded their petitions praying for the change; and we leave the same to the Great President to decide, etc., etc., etc.

(Signed) Wang Shih-chen, Minister of War, Tuan Chi-jui, Director of the Chiang Chun Fu, Liu Kuan-Hsiung, Minister of Navy, and a long list of General and Military Commanders, filling 6 pages of the *Cheng Fu Kung Pao* or "Government Gazette."

Petition of the Captain-Generals

PETITION of the Captain-Generals of the Cherim League and others to the Great President on the necessity for a change of the form of State:

Since the beginning of the World it has never been heard that there could be permanent peace and wholesome administration for a nation when the form of State is in conflict with the condition of the people. The Republic does not express the will of the people. After the Revolution of Hsin Hai the form of State was changed; but men of experience already expressed their anxiety at that time regarding the change. For the past few years the republican principle has been under experiment, and now we behold its failure. Consequently a few wise scholars lately raised the question of the Salvation of the Nation by the introduction of a constitutional monarchy. After a brief discussion the whole Nation has responded, as if the "shadow follows the substance" and the "echo answers the sound." This in truth evinces the will of the people. Mongolia, situated on a remote frontier, has always depended upon China, and therefore the peace or disturbance of China has a close effect upon our land. If no measures are taken to effect a change, the heart of the people will be disappointed and dangers of all description will arise; then not only China will be placed in a dangerous position, but there will be no hope for the salvation of Mongolia. We have of late gathered together our people in Mongolia for consultation; and we are agreed that China must be a monarchy and that the Great President, whose "sacredness" and civil and military ability have been respected unanimously by the people within the Confines of the Seas, must envisage the general situation of China without harbouring vain scruples to the end that the desire of the Mongolians for good government may be realised and great blessings secured for China. Otherwise, the foundation of the Nation will never be firmly established, the public mind will never be settled, and the future outlook of China will always be gloomy and dark. It is not the interests of Mongolians alone that will be injured, but the whole body of the citizens of China will equally and forever suffer. At the present critical time, whether the Nation will have order or the reverse depends wholly upon the right or wrong path to be trodden by the Great President who has always had the welfare of the Nation at heart. We earnestly pray that he will condescend to respect public opinion and arrive soon at the fundamental solution of the important problem. We respectfully await the order, etc. . . . We beg to state that the foregoing text has been telegraphed to the Great President, and we hereby submit this petition by the hands of our representatives, etc. . . .

(Signed) Prince Chi-mo-to-san-pi-leh, Captain-General of the Cherim League, and a number of Princes and Dukes.

Petition of the Navy

PETITION of Liu Kuan-hsiung, Minister of Navy, to the President requesting that the form of State be at once fixed so that the "heart" of the people may be settled:

On the 6th instant I received a telegram from the Chief of the Admiralty Office, Commanders of various naval stations and Captains of various men-of-war stating that "It is learned that of late the Chou An Hui has promulgated the doctrine of the change of the form of State. We being naval men have not dared to discuss things which are beyond the ambit of our sphere. We have, however, observed the will of the people in places where our men-of-war have visited and we believe that unless a constitutional monarchy is introduced, there will not be permanent peace and order. We have gathered together various Commanders and Captains to discuss carefully this problem, and our opinion is unanimous. Therefore we beg to submit our suggestions for transmission to the Great President for consideration."

The principal thing for a military or naval man is obedience, and his duty is to defend the Nation. While performing his duty with "fear and trembling," he should by no means try to interfere with the administration of the State. However it must be remembered that in the late period of transition, decisions were hurriedly made under special circumstances; but no thought was bestowed upon the historical traditions and the circumstances of this Nation. Should we continue in the present state, dangers will inevitably appear. It has been four years since the Hsin Hai Revolution, and all we have noticed during the period has been that the rebel *tangs* have exercised their influence and the people have been dragged into great misery and suffering. Fortunately by the Divine authority of the Great President, the bad elements have been cleansed out from within the Confines of the Seas. When we remember all the disturbances of the said period, our heart verily aches. What is the real cause of these troubles? The unanimous reply is that a republican form of State does not suit the condition of our Nation. We Kuan-hsiung and Others, in our tours of inspection at various places and the Captains of men-of-war who have visited ports, have collected the opinion of various localities and studied their conditions, and the unanimous voice we have heard has been one demanding that the fundamental solution of the present problem be at once made in order to prevent all future disasters. As we have thoroughly understood the above circumstances we cannot keep silence. As our Great President has been dowered by Heaven with great wisdom and benevolence, and as his merits and virtues are so self-evident that they have commanded the unanimous respect of the whole people within

the Confines of the Seas who depend upon him for their existence, we crave that he should condescend to comply with the public desires in settling this fundamental problem to the end that the hopes of the living beings in the remotest Corners of the Seas may be realised, and the foundation of the Celestial Empire may be firmly established. As the question under issue is of so great consequence, we have dared to submit this petition without being influenced by any other consideration. We hope that the Great President will graciously deign to give a favourable consideration to this our humble prayer, etc., etc., etc.

(Signed) Liu Kuan-hsiung, Minister of Navy.

Petition of the Governors

TELEGRAPH PETITION of Chu Chia-pan, Governor of Chihli, and Others to the Great President requesting that the public desires be granted and the fundamental problem of the day be settled:

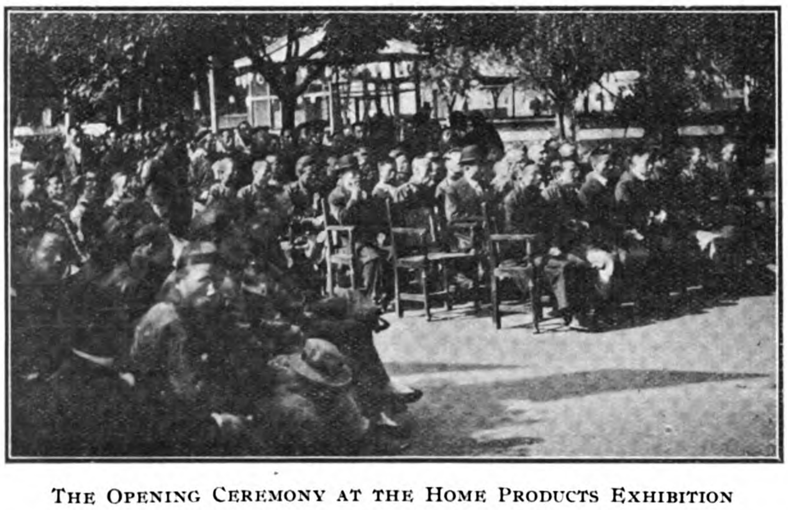
Since the question of Kuo-ti was raised, people everywhere have discussed the problem and they have been longing for a quick solution. As the patriots have discussed all the details in connexion with the unsuitability of a Republic for this Nation and the possibility of disturbance during the time of Presidential election, it is unnecessary for us further to dwell on the theme. By perusing the message of the Great President to the Acting Li Fa Yuan, particularly the passage in which it is stated that "With regard to the means of consolidating the foundation of the nation and strengthening the country, the best means can be devised if the opinion of the majority of the people is consulted," the people of the whole country can see the moderation and integrity of the Great President. It is certain that the firmness of the foundation of the Nation depends upon the "heart of the people." Now the whole people of this country have unanimously requested the change of the form of State; because they have for the past four years observed the misery and the unstable condition of the Nation. They have now been obliged to pray the Great President to make an important decision to lift them out of the misery of "water and fire" to the end that there shall be permanent peace and order in this Country. We, Chia-pao and Others, have noticed that since the time of Hsin Hai when the Great President took over the administration of affairs he has experienced many difficulties and dangers which, however, he has suppressed and overcome. His first object is and has been to save the Nation and the people; and it is known by all that he has been just and self-sacrificing. Now the hearts of the people are exceedingly anxious, and the Kuo-ti problem is awaiting solution. We pray that the Great President will comply with the wishes of the four hundred millions according to his usual desire of saving the Nation and its people. We pray that he may not leave the people to perish while showing his modesty. Let the question be at once referred to the Tsan Cheng Yuan in its capacity of the Li Fa Yuan for immediate solution.

(Signed) Chu Chia-pao and 21 other Governors.

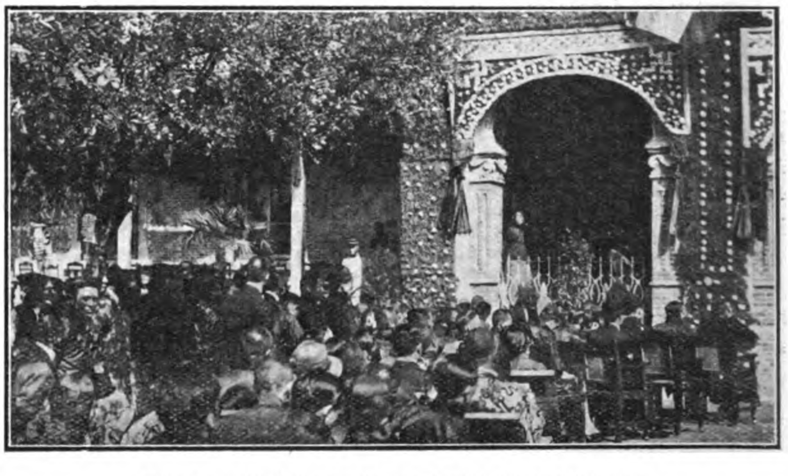
HOME PRODUCTS EXHIBIT AT PEKING

On October 1st the Home Products Exhibit was formally opened to the public at Peking, and it is gratifying to note the satisfactory manner in which the exhibition has been prepared on very short notice. It was only three months ago that the different provinces were notified of the intention of the Ministry of Commerce to hold an exhibit of home products in Peking, and every province did its share in making the exhibition a success.

The Exhibit is the result of a desire on the part of His Excellency Chow Tze-chi, Minister of Commerce, to awaken the people to the necessity of doing something to build up China's commerce and industry. His Excellency saw no reason to delay the holding of a national exhibition of home products and felt that whatever is done should be done now. The most prominent characteristic of this progressive Minister of State is to do things "now," and it is refreshing to find that he has instilled a certain amount of the "do it now" spirit into many of his associates.



The Opening Ceremony at the Home Products Exhibition



Stage for Speakers at Exposition Opening

One day in the Ministry some one remarked that it would be well to have an exhibition of home products at some future date as it would help materially in educating the people. His Excellency immediately stated that it was useless to postpone the date too long, and ordered that an exhibition be held in Peking to open on October 1st. Many of the officials and leading citizens laughed at the idea, but the Minister gave his orders, and the Home Products Exhibit was opened on October 1st.

Mr. Yung Tao was appointed President of the Exhibition by Presidential Mandate, and this gentleman, with the assistance of Messrs. Chang Yin-hsu and Wu Kuang-zu, both of whom are at the heads of departments in the Commercial and Industrial Commission, have made the exhibition a success.

It is interesting to note the manner in which these two gentlemen worked day and night to arrange not only for the display from the various Provinces but also for the entertaining of the great crowds. They are of very quiet and retiring disposition, and nothing done by them was done with the idea of praise. It is certain that without them the Exhibition would never have been a success, and the Minister knew his men when he allotted the work to them.

The main idea in having the Exhibition is to prepare for a permanent exhibit of each of China's industries and for the present to make Peking the headquarters. While Peking is by no means the commercial or industrial centre of China, it is felt by those who are interested that such an exhibit is needed in the capital city to educate those who are to govern China. Branch exhibits will eventually be built up in Canton, Tientsin, Hankow, Shanghai and Moukden.

The Peking exhibit will be under the control of the Commercial and Industrial Commission, and the building temporarily used for the present exhibition will be the permanent home of the Commission's Commercial and Industrial Museum. This Museum will be built up alongside the Division of Information, and it is hoped that the native and foreign merchants will soon be greatly profited by the work of these two departments of the Commission.

The exhibits included the bulk of the arts and crafts of China, and contained many articles of splendid workmanship and value. To foreigners in particular who are interested in the trade possibilities of this great country the exhibition afforded an excellent means for quick realisation of what is produced, and what is available for commercial utilization, and a permanent exhibition should become increasingly valuable as China is opened to trade.

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CONTENTS

	PAGE
The Deforestation of China	167
Yalu Timber Markets	170
Reviving the Monarchy in China	171
Home Products Exhibit at Peking	174
President Yuan Shih-kai and the Monarchy Movement	175
A Sino-Japanese Problem	176
The Fourth Year Domestic Loan	177
The Chinese Civil Service	177
Improvement of China Tea	179
Straw Braid Industry of Shantung	182
Mining Progress in the Philippines	183
Lubang Gold District in Southern Benguet	184
Mineral Resources of Surigao Province	186
Mining in Manchuria	188
Industry and Commerce of Formosa	189
Tr de Conditions in Manchuria	192
Printing and Paper in China and Japan	195
Engineering and Financial Notes	198
Classified Index of Advertisers	205

PRESIDENT YUAN SHIH-KAI AND THE MONARCHY MOVEMENT

The attitude of President Yuan Shih-kai towards the movement to re-establish monarchy in China has been the subject of much speculation. It is common knowledge that until quite recently His Excellency peremptorily declined to consider the question of a change of the form of government, although some of his most trusted lieutenants endeavoured to persuade him that a reversion to monarchy would be in the best interests of the country. It became evident, however, after the formation of the Chouan Hui (Society of Peace) that the monarchical movement had gained such strength that, if the President had set himself in open opposition to it, he would have run the risk of placing himself in a position in which he would be resisting the will of the people. In such circumstances His Excellency deemed it his duty to inform the Council of State, which had under consideration a number of petitions urging the re-establishment of monarchy, of the view he took of the question. Consequently a Presidential Message* was read at the meeting of the Council of State held on September 6, in which His Excellency stated that, although he regarded the proposed change as unsuitable to the circumstances of the country, the opinion of the people should be consulted.

The further progress of the movement and the measures taken to secure a popular expression of opinion are reported elsewhere. No further public utterance was made by the President until October 9, when Mr. William R. Giles, correspondent of the "Chicago Daily News," was received in audience and obtained an explicit and definite pronouncement from the President of his views in regard to the movement. In answer to a question relative to his future policy the President said: "As in the past, so in the future my policy will be a progressive one. From beginning of my official career I have always had three special objects in view.—

"(1) The establishment of a sound and far-reaching system of education in its widest sense.

"(2) The expansion of the country industrially and the exploitation of its great resources.

"(3) Thoroughly to reform the army.

"Early in life I realized that it was only by the institution of a sound system of education, which would reach to every corner of the great country, that real progress could be made, and the many necessary reforms effected.

"I also saw that to make this country strong within itself it was necessary that its vast resources should be developed on up-to-date lines and that every encouragement must be given to industrial and commercial enterprises.

"To enable the people to carry out these industrial and commercial enterprises, and to facilitate trade generally it was necessary that peace and order should prevail throughout the country. To ensure this it was necessary that the army should be efficient and disciplined, and this state of things could only be brought about after it had been thoroughly reformed. Although in many instances I was strongly opposed, I devoted considerable energy to these things. The schools and other educational institutions, the commercial training establishments, and the army I had trained under foreign supervision when Viceroy of Chihli many years ago, are evidence of some of the progressive ideas I have attempted to carry out."

The President laughed heartily when told about the reports in circulation that a re-establishment of monarchy would lead to a restoration of the Peacock Feather flummery of the Manchu Court, and said that there was not the slightest likelihood of the Peacock Feather being again worn in China. In regard to the allegation that it was feared that a period of reaction would follow the re-establishment of monarchy the President said that it was impossible for China to revert to the old order of things. A new spirit had been breathed into the people and nothing could stop their efforts for progress and reform.

When informed that the Young China Party and the students educated abroad thought that they would have

* Published in the September issue of the FAR EASTERN REVIEW.

no chance of official appointments and that only the old type of official would be employed in the event of a change in the system of government, the President said that as long as he was in power the widest scope would be given to foreign educated officials. He pointed out that it was through his efforts that the old system of literary examinations was done away with and a system of examination based on western methods substituted. He was one of the first officials to urge that Chinese should be sent abroad to study and in the early days of his official career he fully recognised the importance of employing foreign educated officials. As evidence of that he mentioned his employment of Tang Shao-yi, Liang Tun-yen, Liang Ju-hao and others more than twenty years ago.

In response to the direct question, what would be his attitude if it were the will of the people that the monarchical form of government should be restored, the President replied:—"During the past few years the question of the form of state has been raised several times, and the agitation has been gaining in strength. In my position, I, of course, firmly prohibited any discussion, giving my reason for so doing that as the Republic had been established such discussion could not be tolerated. Although those who raised the subject did not agree with me at the time, yet after my firm refusal the matter was dropped for the time being. But, during the past few months, the influential leaders of the country have practically unanimously again brought forward the subject. Citizens of the various provinces have again and again petitioned the Council of State. If repressive measures were employed there is great danger that, deprived of venting their opinion, untoward events may take place disturbing the peace and good order of the country, and involving the utmost danger to the general situation. Placed in this dilemma, I, on the one hand declared that the change in the form of state is unsuitable to the circumstances and on the other hand have striven to guide the body of opinion into legal lines to await the verdict of the people, and have forbidden rash or ill-considered steps. In this way not only can order be maintained, but the solution of the question will rest with the people, because the people being the sovereign and I their public servant, the decision of this fundamental question cannot be usurped by any other person, but must rest with the people. After having done this my duties and functions end here. How the question is to be solved in the future is a matter for the organ which represents the will of the people. Being the Chief of the Executive my concern is only to maintain order throughout the country. Since I have already, even at the risk of possible misconstruction, expressed my views, whether the people will hearken to me is not for me to ask.

"If it is the will of the people that the republican form of government remains in force, which is the thing that I desire, I shall be able with strengthened hands to carry out my policy of reform. If, on the other hand, they decide on the restoration of the monarchy, then, being their electee as President I shall not oppose their wishes."

Touching constitutionalism, the President said: "I was the first Chinese statesman to advocate a constitutional form of government, and no matter what is to be the future form of state, whether in office or not, I shall stand for a constitutional form of government in the fullest sense of the word. The legislature should have the fullest liberty to discuss the nation's affairs and to legislate freely. Whether the people decide for a republican or monarchical form of government, and I have any power, the Legislative Assembly will be established in the beginning of next year."

It would be hard to over-estimate the importance of this pronouncement by the President. Not only is what he said worthy of the closest attention, but great significance attaches to what he left unsaid. On the authority of an unauthenticated report of a conversation said to have taken place between the President and a certain official, it was alleged that the former would retire to a foreign country, probably England, if the country declared for a monarchy. It will be noted that he made no suggestion of the sort in the interview just quoted. From this fact it may be inferred that, although in accordance with etiquette His Excellency will endeavour to reject the honour that will be offered to him in the event of the country declaring for a monarchy, his objections may be overcome.

"Progress and Constitutionalism" is, we are given to understand, the motto that the President has adopted, and the views that he has expressed are designed to silence the insinuations that he is in favour of reaction and the re-establishment of the abuses of an autocratic monarchy. If he is compelled to ascend the Throne it should mean the establishment in China of genuinely constitutional government. Nothing could be more definite and reassuring than his declaration that whatever might be the result of the referendum he would stand for "a constitutional form of government in the fullest sense of the word." Equally satisfactory are the assurance that the Legislative Assembly will be established in the beginning of next year, and the President's determination that the Legislature should have the fullest liberty to discuss the nation's affairs and to legislate freely. The President's views cut the ground from under the feet of those who claimed that the re-establishment of monarchy would sound the death knell of progress and reform. It is evident that, if President Yuan Shih-kai is forced by the pressure of public opinion to ascend the Throne, instead of reaction setting in reform will be stimulated.

A SINO-JAPANESE PROBLEM

The new Sino-Japanese treaties involved a material change in the relationship between Japanese in South Manchuria and the Chinese authorities. By these treaties the Japanese secured certain privileges, the scope of which was broadly defined. It was inevitable that a more precise definition would become necessary to prevent disputes and misunderstanding, and pourparlers to this end are in progress. With goodwill and consideration shown by each side there is no reason why satisfactory working arrangements should not be arrived at.

One matter that is engaging attention is the situation in Chientao, a district north of the River Tumen. By an agreement between China and Japan signed at Peking in September, 1909, it was agreed that the Tumen should be recognised as forming the boundary between China and Korea. Previous to this agreement Japan had endeavoured to maintain a claim that the Chientao district was Korean territory, but was compelled by the logic of irrefutable evidence to admit that the claim could not be supported. An arrangement was made that the Korean people residing on the agricultural lands in the Chientao district should submit to the laws of China and be amenable to the jurisdiction of the Chinese local officials. A Japanese Consular officer was to be allowed freely to attend the Court where civil or criminal charges against Koreans were heard. This agreement in regard to Chientao is still effective, but it has to be borne in mind that the Koreans have since become Japanese subjects. The Koreans in this region for the past thirty years have been allowed to own land, a privilege that has never been given to other foreigners in China. At the present time the Korean population of Chientao, which is estimated at over 200,000 exceeds the Chinese population.

The annexation of Korea by Japan did not alter the status of these Korean settlers and they remained subject to Chinese laws and to the jurisdiction of Chinese courts until September, when the Japanese Consular authorities suddenly interfered and claimed jurisdiction over the Koreans. By the treaty relating to South Manchuria and Eastern Inner Mongolia, signed in May last, the Japanese consular authorities were to try and adjudicate upon cases in which the defendants are Japanese The Japanese claim that the Korean settlers in Chientao are entitled to the privileges given by the treaty.

The Chinese maintain that the boundary agreement of 1909 is still operative, and they point to the provision in the new treaty which says "all existing treaties between China and Japan relating to Manchuria shall, except when otherwise provided for by this treaty remain in force." The Waichiaopu takes the view that the boundary agreement is one of the treaties that was not affected by the treaty of 1915. To understand the position

clearly it is necessary to recall the circumstances in which the boundary agreement was concluded. As already stated, when the Japanese assumed suzerainty over Korea they raised certain questions in regard to the boundary between Korea and China. At the same time there were several questions respecting railways and mines outstanding between China and Japan. It was obvious that these matters should have been discussed separately, but Japan insisted that the boundary question and the railway and mining questions should be taken together. Owing to local troubles with Japanese soldiery, which resulted in the killing of Chinese policemen and soldiers and the wounding of officials, the Chinese authorities were constrained to agree to the demand for simultaneous discussion. Two agreements were the result, one the boundary agreement with an important railway privilege tacked on to it, and the other relating to railways and mines. If the material gains secured by the parties to the agreements be contrasted it will be seen that while China obtained a bare recognition of existing rights, Japan secured many new and valuable privileges and concessions, namely the extension of the Changchun-Kirin Railway to the Korean frontier, the option on the Hsinminfu-Fakumen line and the right to work the Fushun and Yentai mines. Japan gave an inadequate consideration in exchange for these privileges and concessions, and she now is endeavouring to repudiate this consideration. The Chinese Foreign Office holds that, while Koreans are now Japanese subjects, the Korean settlers in the Chientao région are in a special position as regards China. These settlers enjoy the rights of free residence and ownership of land that are denied to all other foreigners, including Japanese subjects, and at the same time they are subject to the jurisdiction of Chinese laws and Chinese courts, whereas other foreign subjects are not. A further proof that these settlers were not regarded as being on the same footing as other Japanese subjects is found in the provision in the 1915 treaty that Japanese subjects may *lease* land, whereas these settlers in the Chientao region may *own* the land they cultivate.

The Chinese Foreign Office points that in the new treaty, article 5 says—"The Japanese subjects referred to in the preceding three articles, besides being required to register with the local au horities passports which they must procure under the existing regulations, shall also submit to the police laws and ordinances and taxation of China." It is clear therefore that the Japanese subjects contemplated under this Treaty are those who have to procure passports under the existing regulations. On the other hand, the Koreans in the Yenchi (Chientao) region have never been required to procure passports. A more conclusive proof that these Koreans are not within the provisions of the treaty of 19f5 but are still governed by the agreement of 1909 cannot be found.

During the negotiations on the new treaty Mr. Hioki, the Japanese Minister, admitted that the Korean settlers in the Chientao region did not come within the orbit of the treaty, but as, by Japan's express stipulation, no official minutes were kept of the negotiations, this admission is not on record.

There should be no real difficulty in arriving at a satisfactory solution of the problem. On moral grounds China certainly has a right to expect that Japan will treat her with consideration. Japan was paid a very handsome price for acknowledging the *status quo* in Chientao, and it would savour of diplomatic sharp practice to repudiate the acknowledgment while retaining the price paid for it. The legal point involved is whether the boundary agreement is one that remains in force in its entirety, notwithstanding the treaty of 1915. The Chinese say it is, the Japanese say it is not. Failing an agreement this seems eminently a question to submit to arbitration. There is no question of national honour involved, merely a legal point, and consequently the matter could fittingly be submitted to neutral arbitrators. If, as is rumoured, Japan insists that her view is correct and threatens to secure its acceptance by military force she will place herself in a very bad light before the world and will confirm the distrust and suspicion that was excited by her actions in the earlier months of the year. It is to be hoped for Japan's own sake that these rumours are false and that she will exhibit a reasonable and accommodating spirit and agree to arbitration if a satisfactory settlement cannot be otherwise attained.

THE FOURTH YEAR DOMESTIC LOAN

The Ministry of Finance at Peking has officially announced that the Fourth Year Domestic Loan of $24,000,000, Mexican currency, has been over-subscribed. The subscriptions amounted in all to $25,933,425.

The successful flotation of this loan, following as it did so closely upon another loan for a similar amount, is regarded as particularly gratifying by the Chinese government. By the over-subscription of the loan the people of China have given a further demonstration of their trust in their administration. The loan was issued at 90 and carries six per cent interest, which is by no means unfavourable in view of the world-wide financial stringency that prevails. When creditor nations such as France and Great Britain are paying as much for their loans as five per cent., it is a good testimonial to China's credit that she can obtain money at only a point higher.

This loan and the previous one do not constitute any real increase of China's indebtedness. The proceeds have been and are being used to pay off other loans bearing high interest. Consequently China's financial position has been improved, not only morally by showing that the Chinese people have confidence in their government, but materially by decreasing the annual interest charges. It is interesting to observe that substantial contributions to the Fourth Year Domestic Loan came from the United States, Canada, Australia, New Zealand, Cuba and other places where there are colonies of Chinese.

THE CHINESE CIVIL SERVICE

A number of Presidential Mandates relating to the Chinese Civil service have recently been promulgated. In his prolegomenon the President points out that when the change of government caused by the Revolution took place all the former systems and practices of appointing and promoting civil servants were abolished. The administration had suffered in consequence. Certain measures had already been taken to improve conditions, but they had not yet been strictly enforced. "Consequently there has not yet been any fixed standard for the appointment of officials and those who make the appointments can very easily be influenced. Intrigues, nepotism and other bad practices have gradually come into the system. This is not the way to encourage integrity and to command respect for official posts."

The President continued that he had decided to fix a certain standard of qualification, and to that end had promulgated Mandates on the High Civil, Diplomatic and Consular, and Judicial Examinations, Regulations on Applications for Diplomatic and Consular Examinations, and on Applications as referred to in Article 3 of Judicial Examinations, Mandates on Ordinary Civil Service Examinations, Commissions for High and Ordinary Civil Examinations and Recommendations for Civil Service Appointments, Regulations on the Ratification of the qualification of Candidates for Diplomatic and Consular Service, Mandates on the Procedure of General Civil Appointments of officials of Chien Jen (selected), Chien Jen (recommended) and Wei Jen (appointed by high officials) classes, on the Enforcement of Civil Appointments and on the number of cadets in Civil Service, and Regulations on the Examination of Scholars.

After explaining the objects that it was sought to attain, the President proceeded: "After the promulgation of the above-mentioned Mandates and Regulations it is necessary that some time should be allowed for making due preparations for their enforcement, and consequently we have promulgated at the same time the Mandate on the enforcement of the Civil Appointments to make up the deficiency. Appointments will be given very carefully and can only be obtained by steps and seniority. Thus there will not be allowed corruption and irregularities in connection with recommendations, investigations, etc."

On several occasions during recent months we have emphasized in these columns the importance of the reformation

of the civil service system in China. Good results could not be expected as long as appointments and promotions were simply matters of influence. Those who held posts have always been faced with the possibility that the retirement or transfer of their political chief would entail the loss of their positions. With the tenure of office so insecure it was not to be expected that officials would throw themselves whole-heartedly into their work, nor that the best man would seek office on such conditions. Other countries have learned from experience that it is impossible for the administration to be efficiently conducted unless the officials be capable and honest. They have, therefore, made appointment to the service subject to proof of capability, and have secured honesty by paying officials adequate salaries and giving them reasonable security of tenure and assurance of promotion. In the past this has not been the principle on which China worked. The suitability of a man for any particular post was judged not so much by his qualifications as by his acceptability to the particular political clique that had the bestowal of the post. That China has many capable and trustworthy officials in her service is remarkable in the circumstances, but it has been in spite of, and not due to, the system that has hitherto been in vogue.

It is encouraging to find that at least a start has been made to institute a better system. A great deal of discussion has been taking place about the form of government that is most suitable for China, but of no less importance is the character and capacity of the officials who, to the unlearned, in themselves constitute the government. In no other country than China, probably, is it of greater importance that the officials should be capable and trustworthy men. Much of the unrest and many of the local uprisings that have checked progress in the past in China have been caused by the employment of men who united unfitness with dishonesty. Where the officials are competent and upright the Chinese have shown themselves extraordinarily amenable to law, and this has been strikingly proved in foreign countries in which Chinese colonies have been formed. The new Mandates, if they accomplish the objects that the President has in view, should do a great deal, not only towards improving the morale of the Civil Service and increasing their usefulness, but also towards improving the condition of the people as a whole. Consequently these Mandates must be regarded as a very significant manifestation of the intention of the President to carry out an effective policy of reform.

One of the most important reforms that will be brought about by the new regulations will be the cessation of wholesale appointment by "recommendation." This method has resulted in flooding the country with "expectant" officials. The time-honoured practice has been for any official who had himself gained an important post to recommend every one who had any kind of claim upon him for positions in the government service, quite irrespective of their qualifications. All that is to be changed. The privilege of recommending officials is to be strictly curtailed, and when it is exercised precautions will be taken to prevent its abuse. Thus no official below a certain grade will have the privilege of recommendation, and even in such cases these officials will not be permitted to nominate more than two candidates. Moreover those nominated will have to undergo a stiff examination before they can receive an appointment.

This examination will be conducted by a special board of twelve or fifteen members, the chairman of which will be the Secretary of State. It may be assumed in these circumstances that there will be very little prospect of incompetent men entering the service by recommendation. This one huge breach in the Civil Service wall, through which all sorts of undesirable outsiders entered the citadel and lowered the morale of its garrison, has, it is hoped, been repaired, and the postern gate that marks its former position ought to be so vigilantly guarded that none may enter unless he knows the pass-word. The advantages that will attend the adoption of closing the door to nepotism are incalculable. The service should not have to bear the dead weight of a large mass of incompetents, and the civil servants should be relieved of the danger of unfair competition from men who could secure promotion by influence.

A necessary corollary to the cessation of promiscuous appointment by recommendation is the protection of men in the service from unfair treatment. If a man has passed the prescribed examination and received his appointment, it is obviously desirable that he should know that his retention of his position and prospects of promotion depend entirely upon his good behaviour and diligence. For the future no official will be liable to summary dismissal without given cause, and if he should deem that he has been unfairly treated he will be able to demand the hearing of his grievance by the proper tribunal. This should go far towards giving the civil servants the sense of security that is essential if they are to devote themselves whole-heartedly to their duties.

LAICHOWFU SOAPSTONE QUARRIES

Laichowfu is known all over China on account of the soapstone quarries near by. The crude material is brought from the hills, 5 miles away to the east, to the villages, where it is chiseled and scraped into idols, slate pencils, and innumerable toys and designs of every description. The chips and powder are made up into small square cakes or shoe-shaped molds, and marketed for use as whitewash, being very extensively used as such in China.

All over northern China may be seen the roadside monuments of the Laichowfu marble. The elaborate designs in marble of the Lama Temple, Yellow Temple, Hall of the Classics, Confucian Temple, the covered and the open altars in the Temple of Heaven, the Forbidden City, and the Agricultural Temple—all in Peking—as well as of the Summer Palace in the Western Hills and the Ming Tombs to the north of the city, could very easily have been worked from the Laichowfu quarries, so identical is the quality.

All along the route from Hwanghsien to Laiyang, via Laichowfu, Changi, Weihsien, and Pingtu, there is considerable cotton reeling and spinning. At Laichowfu a small cotton factory which is turning out nicely woven blankets, the Changi and Laiyang districts being engaged quite largely in silk spinning and reeling, the latter place producing about 20 pretty shades of thread. Silk is also produced around Kiaochow.

These cotton factory looms, like the silk looms of Ch' Hsia, are homemade, but are far superior to the latter, in that they turn out about five times as much daily. From a cursory examination, the only difference in construction seemed to be in the shuttle, which was automatic in the one and propelled by hand in the other.

From Laichowfu to Pingtu via Weihsien straw braid is locally manufactured. Shaho is the principal market. Numerous Chinese agents at this city engage in buying this product from the small producers and send it down to Tsingtau.

Quite a business is also done in the donkey markets of Laichowfu, Laiyang, and Chefoo.

Outside of Chefoo Mexican dollars are the only reliable medium. The stores and native banks in the suburbs of Chefoo do not care for paper money. A personal check on the Chefoo bank would be readily accepted at Hwanghsien, but notes are so rare—60 miles from Chefoo—that no one wants them, all preferring cash, coppers, or silver, and will not accept outside notes if they can help it.

Mexican dollars are accepted everywhere after shroffing, it being no insult to test the coin in your presence, as it is the invariable custom. All large concerns employ a shroff for this purpose, as there are so many slightly debased as well as spurious coins in circulation.

IMPROVEMENT OF CHINA TEA

Establishment of Experimental Stations and Subsidies

It would appear that the Chinese Government is at last about to take steps to revive the rapidly declining tea trade, which used to be, and still is, of great importance to the country. Before the advent of the Indian and Ceylon teas China tea held the foreign markets, but for various reasons the trade has fallen off and the loss thereby occasioned is now being severely felt.

In order to improve tea production the Government has decided to establish an experimental station in Anhui province, with forty sub-stations at a cost of, at the beginning, $15,808 per annum. It is hoped that by virtue of the establishment of a model station and the inauguration of an educational campaign, by lecture courses and subsidies, to improve 360,000 tea bushes and plant 470,000 new ones in the first year. The details of this scheme are given in a memorial, published below which was presented by the Minister of Commerce and Agriculture to the President. The evident desire of the Minister of Commerce and Agriculture to reform this trade brings to mind the agitation which the late Mr. H. T. Wade, of Shanghai, used to wage with the hope of seeing the China tea restored to its proper status. In addition to the improvement of the plants, Mr. Wade urged several other points, and these might well be regarded by the Government. He contended that more might be done for the improvement of China tea if shippers had such invested interest in the article as would give them some control over it *ab initio*. In India and Ceylon, he pointed out, everything belongs to the planter: land, produce, machinery, besides control over the manufacture. It is in his power to make such quality of tea as he may have a special market for. In his hands lies the power to increase or reduce the output and to regulate shipments, and a combination was actually entered into by the Indian and Ceylon growers to adopt a common policy to regulate the quantity made, shipped and sold on the London market. Growers are no longer independent units but an organised body acting in concert with a definite aim. In China it is a case of each shipper for himself, continued Mr. Wade. "It is only those who have witnessed the opening of the Hankow tea market in the month of May who can form an idea of the conduct of the business. They will have seen the extraordinary and irregular prices paid, and the speed with which the article is shipped off to markets too often quite unable to deal with more than a moderate quantity, a speed which may be gauged by the fact that 600,000 half chests out of a possible total supply of 800,000 half chests of Congou are afloat within the very limited time of six weeks. And in due time from across the seas comes the effort to sell with the result that such fluctuations in prices occur as are unknown and impossible in any other article of produce in the known world. It is this absolute inability to control prices in any degree which has driven the genuine old exporter from the field and is one of the causes of the decline of the China tea trade. To such fluctuations the British grown article is never subject because shipments are regulated, and the quantity offered for sale at one time on the home market, although large, is never excessive. The cost of production in India and Ceylon varies but little. A good season may bring out a larger supply of leaf than usual, and so lessen the cost of the article. In China neither quality nor quantity materially affect prices which alone are determined by the caprice of the buyers, for the teaman once having brought his produce to market must perforce sell it or ship it. And he is much too wise to do the latter.

"While there is no possibility of control, the China tea growing not being centered in a few men as in India, it may be possible for the Tea Guild to assist the Government in making not only a better product, but also in respect of regulations of prices and output.

"(a) This end might in a measure be attained could some combination, such as that which regulates output and shipments in India, be entered into not to pay such inordinate prices for that great bulk of tea which fills up the space between choicest and commonest descriptions.

"(b) In India there is no tax on the production or export of tea; in China there is a specific export duty of $1.25 per picul, based on an average value of Tls. 25, and a series of taxes on the article from the place of production to the port of shipment, levied by the local officials and generally known as likin, which amounts on the average to rather more than the export duty, 'with something added for irregular levy and delay and loss of interest.'

"Obviously no industry thus burdened can compete with a rival free of all burden. And strange to say, with the knowledge that these internal taxes are illegal and abolished by Treaty, which in their place imposes a transit duty, namely, $0.625 per picul, the natives are content to be mulcted rather than incur the displeasure of the local officials, and the consequent penalties and lets and hindrances to the prosecution of their legitimate trade."

On the question of imparting greater strength to China tea, Mr. Wade wrote:—

"At first sight it does not appear very obvious how strength can be imparted to the leaf, but when it is suggested that this end may in a degree be attained by returning to the leaf before its final firing some of that precious sap wherein lies the strength now largely lost through the existing native methods of manipulation, the experiment should certainly be worth the trial. Inventive native genius should surely be able to manufacture a rolling machine to be worked by hand which would answer all the purposes which the Indian machine is supposed to meet, or in any case to devise some means whereby the loss of strength of the tea can be minimised. For great and natural original strength is in the leaf undoubtedly. Again, greater strength and increased productiveness might be ensured were those tactics followed which have been so successful in India and Ceylon, viz., replacing worn-out sections of the patches or gardens by newly planted areas on more fertile soil, and by more scientific manuring. The system now adopted in India is called 'Green manuring.' It has been ascertained that leguminous trees, shrubs and annual green crops provide the organic matter and the nitrogen required by the tea bush for its full development. And China is rich in this resource, with her bean and pea fields, her sesamun and kindred vegetable plants. A little local official pressure, the terror of the agriculturist's life, in this direction would soon result in a productiveness without increasing planting which would benefit both grower and tax collector alike.

"It is a time honoured belief that because tea arrives in almost unwieldy quantities in the markets of China within a month that it must be philanthropically shipped off without delay to relieve congestion. Further, buyers are actuated by the fear that if they do not buy tea directly it is offered on the market they will miss their opportunity, and be left out in the cold until another tea season comes round. The result of these ill-considered, hurried shipments, while usually disastrous, is at the same time preventable. Why, for instance, cannot the native tea man be made to hold his stock in China for a few weeks instead of delegating that task to the foreign exporter, who has to carry his holdings, whether in America or England, for months, and sometimes for years? Here, again, a lesson may well be learnt from the Indian shipper. Rational combination to retard shipments should not be impossible.

"There can be no question of the superiority of China tea in the æsthetic properties of aroma and flavour, while it is distinctly a more wholesome beverage and superior dietetic nutrient. While Indian, Ceylon and Java teas contain an excessive amount of tannin, the fruitful mother of dyspepsia, only an insignificant amount is found in China tea. The consensus of opinion of the leading medical authorities in the world

has proclaimed in favour of China tea above all other teas. These important facts should be brought home to the great tea drinking public of Great Britain in some less lymphatic manner than that adopted by the self-constituted China Tea Association. China tea should be advertised, as Indian and Ceylon teas have been advertised, and as strikingly and appealingly as the merits of patent medicines are made known. Even for this purpose should a voluntary tax be levied as in India. China must vigorously fight India, Ceylon, and Java with their own weapons if she would get back even a part of that trade which once, and not so long ago, was all her own.

"An independent step, but one quite in the right direction, is now being taken by a private enterprise well fitted financially and with ability to carry its project to a successful issue. The Pure China Tea Importing and Distributing Company with its buying agencies in Hankow and Shanghai, and a London distributing office, are preparing to place in the hands of those requiring it strictly choice pure China tea packed in China and distributed in original packages only at most moderate price. With the aid of intelligent pushful travellers and a strong advertising appeal to the common sense of the great body of tea drinkers there can be little doubt of ultimate success. But this is a step which, at its inception, ought to have been taken by the China Tea Association who should have canvassed for funds from all those interested in the amelioration of the trade, and so get them financially interested in the new departure. But there is yet time for that august body to take the matter in hand.

"I am strong in the belief that with a scientific enrichment of the soil and a more intelligent attention to the growth and cultivation of the plant the resultant extra-productiveness would largely tend to the cheapening of the initial cost of the leaf—a cost that will be further lessened by the removal of the present illegitimate internal burdens; that a saving of the wastage now occurring by reason of the ancient native method of manipulation will impart a much desired strength; and that, finally, with an article not comparing unfavourably in cost and strength, but comparing only too favourably in wholesomeness, quality and flavour, with the British grown teas of India and Ceylon, properly regulated shipments, and persistent, strenuous, intelligent advertising, China may not unreasonably look forward to a future bright with promise for her naturally magnificent industry."

Tea Improvement in China

The following Memorial was presented personally to the President by the Minister of Agriculture and Commerce for the Improvement of the Cultivation and Manufacture of China Tea:

We have the honor to present this memorial regarding a plan for the improvement of the cultivation and manufacture of China tea, and crave Your Excellency's approval.

Of all the exports from this country tea has been and is one of the principal commodities In recent years Chinese black tea has been largely displaced in foreign markets by that of India, Ceylon, and Java, while Chinese green tea has been displaced by that of Japan. The volume of exports of the two kinds of tea has decreased to an alarming extent. The obvious reasons for this decline are first, the lack of proper organization for the direct distribution, and, second but more important reason, the non-adoption of modern scientific methods of cultivation and manufacture. Investigations have shown that in almost all the tea-growing districts the bushes are either too old to produce good leaves or the soils are becoming barren. It is to be feared that such a state of affairs will mean the gradual deterioration if not the complete extinction of the industry in China. While our competitors, the tea merchants of India, Ceylon, Java and Japan are encouraged and assisted by government subsidies, our tea planters and merchants are conservatively following the old methods of cultivation and distribution. Furthermore, our tea manufacturers are slow to improve their methods and our tea distributors have a very limited knowledge of the industry. It is thus practically impossible for China tea to compete successfully in the foreign markets.

Because the tea market in Europe is very favorable this year, and because the tea production in this country is small, the tea merchants have prospered, but the planters have fared as badly as in previous years. This Ministry has already instructed all the commercial associations to encourage the tea merchants to follow the practise in vogue in India and Ceylon, namely to combine tea cultivation and tea manufacture. They were also instructed to advise the cultivators to increase the number of bushes.

The Ministry will first establish in Anhui Province a tea experiment station to encourage and subsidize the private planters, who will be appointed as officers of the sub-stations. At these stations new bushes will be planted, old ones improved, new methods of fertilizing and pruning of the plants practised, and efficient and cleanly methods of picking, rolling, firing, and sifting of the leaves adopted. These stations will serve as models. In addition lecturers will be engaged to spread the new methods of cultivation and manufacture in the different tea-growing districts. In this way, it is hoped that the production of tea will be increased, the flavor improved, and higher prices obtained for the product. A few years later we believe that the lost interest may be revived. Such methods of encouragement would not involve much expense, while great results can be expected. We hereby beg to propose the following plan with a view to the improvement of the tea industry:

1. The object of the Tea Experiment Station is to encourage and guide the tea planters and manufacturers to adopt new and scientific methods of cultivating, manufacturing, fertilizing, pruning, picking, rolling, fermenting, firing, and also to increase the cultivation of additional plants.

2. The work of the Tea Experiment Station shall be divided into two departments:—(a) Cultivation, (b) Manufacture.

3. The scope of the work of the Station shall not be too large, while the number of sub-stations shall be numerous.

4. To carry out experiments in the manufacture of tea, leaves picked from the sub-stations and also leaves purchased from progressive cultivators shall be utilized.

5. The Experiment Station shall be established in Keeman, Anhui Province. Sub-stations shall be first established in Keeman and Kintuck, Anhui Province, and in Foliang, Kiangsi Province. In the tea-growing districts in Hunan, Hupeh, Chekiang and Fukien, stations will be established later on.

6. The Sub-stations shall not be managed by the Chief Experiment Station, but they shall be subject to the following three regulations:—

(a) For planters owning their own land. Since most of the cultivators are ignorant and conservative it is a difficult matter to get them to improve their tea cultivation. Planters, who were formerly either students of the Nanyang Tea Industry Training School established by the Tea Commission sent out to India and Ceylon ten years ago, or graduates from the Preparatory Department of the same school, or graduates of local Agricultural Schools shall be appointed sub-stations officers. As many of these former students were natives of the provinces of Anhui and Kiangsi and in many cases sons or relatives of tea planters and manufacturers, they are competent to undertake the proposed work.

The work expected of the planters shall be the application of the scientific methods of cultivation of their own plantations, of the fertilizing, pruning of and the picking from tea bushes. These plantations shall be recorded as sub-stations of a certain village in a certain district. Such plantations shall serve as models. In return, the planters shall receive a certain monthly allowance.

(b) For planters who rent public lands. Students who have been at the Tea Industry Training School above mentioned or graduates from local Agricultural Schools, but who own no tea plantations, shall be provided with public lands rented to them and shall be appointed to take charge of the cultivation of such lands. In return, they shall also receive a certain amount of monthly allowance. They shall themselves develop the land with their own capital but must follow the methods advised by the Experiment Station. These plantations shall be recorded as sub-stations of certain village located in certain district.

(c) For combining tea merchants and tea planters. In order to improve the tea industry one of the best methods is to encourage the combination of cultivation, manufacture, and distribution of the products by one man or concern. It is well known that the tea merchants have capital but their inability to

stand the hardship of agricultural life has hitherto restrained them from entering into tea planting. If they did undertake this, the expenses of manufacture, etc., would really be comparatively small, and the capital invested would not be subjected to great risk. We therefore propose to interest the tea merchants in the cultivation of tea, by encouraging them with some form of rewards. Individuals or companies who start plantations will be supplied with tea seeds gratis, and the improved methods of cultivation will be taught either by the officers of the Experiment Station or the sub-stations. Persons cultivating 200 mous or more shall be rewarded according to the regulations of afforestation.

7. Cultivators who own and cultivate tea plantations and who act as sub-station officers shall be subsidized according to the following scale:

(a) Cultivators of more than 4,000 bushes shall receive $2.00 per month.
(b) Cultivators of more than 8,000 bushes shall receive $4.00 per month.
(c) Cultivators of more than 12,000 bushes shall receive $6.00 per month.
(d) Cultivators of more than 16,000 bushes shall receive $8.00 per month.
(e) Cultivators of more than 20,000 bushes shall receive $10.00 per month.
(f) Cultivators of more than 24,000 bushes shall receive $12.00 per month.

Note. The subsidies are given according to the number of bushes grown and not according to the number of mous, because the number of bushes grown per mou varies greatly in different localities. The Experiment Station shall pay the current market price for leaves purchased for manufacturing tea.

8. Cultivators who rent and cultivate public land and who act as sub-station officers shall be subsidized according to the following scale:

(a) Cultivators of more than 25,000 bushes shall receive $15.00 per month. In addition $30.00 will be paid for the opening of the land in the first year.
(b) Cultivators of more than 50,000 bushes shall receive $30.00 per month. In addition $60.00 will be paid for the opening of the land in the first year.
(c) Cultivators of more than 75,000 bushes shall receive $45.00 per month. In addition $90.00 will be paid for the opening of the land in the first year.

Note. From the fifth year after the planting of the tea bushes the monthly subsidies to be paid shall be the same as that paid to owners of plantations. The tea leaves purchased by the Experiment Station from such cultivators shall be paid for at the rate of 80 per cent of the market price, but from tenth year on full market price shall be paid.

9. According to the present plans 40 sub-stations shall be first organized. The estimated annual expenditure for the subsidies is as follow:—

(1) 30 sub-stations for cultivators who own tea plantations:—
Class (a) 8 sub-stations of over 4,000 bushes each $192.00
Class (b) 6 sub-stations of over 8,000 bushes each $288.00
Class (c) 6 sub-stations of over 12,000 bushes each ...$432.00
Class (d) 4 sub-stations of over 16,000 bushes each ...$384.00
Class (e) 3 sub-stations of over 20,000 bushes each ...$360.00
Class (f) 3 sub-stations of over 24,000 bushes each ...$432.00

(2) 10 sub-stations for cultivators who rent public land:—
Class (a) 4 sub-stations of over 25,000 bushes each ...$720.00
Class (b) 3 sub-stations of over 50,000 bushes each ...$1,080.00
Class (c) 3 sub-stations of over 75,000 bushes each ...$,1620.00

The above estimated annual subsidies total $5,508.00 and the additional $300.00 subsidies for opening the land give the grand total $5,808.00.

10. The merchants who grow tea themselves, country people and gentry who organize tea-growing companies and who ask for advices and guidance from the Experiment Station shall not be subsidized.

11. At the beginning the Experiment Station will assemble students; the local gentry and country people, who desire to improve the tea industry, will offer short courses on tea cultivation, tea manufacture and progressive methods of the industry in India, Ceylon, Japan and Java. Sub-station officers will be selected from these students. After the harvest every year these students as well as the sub-station officers will travel to neighboring places to conduct lecture courses on tea.

12. There will be a director of the station and three technical assistants, with the director as the technical chief.

13. All the buildings of the Station will be simple; the lecture hall will be fairly large, but residential quarters will be simple and economical.

14. At present no machinery and modern factory are required for the manufacturing of tea. During the tea season spacious native factories can be rented for the purpose. Tea leaves are purchased from the sub-stations and from cultivators who have practised improved methods. The leaves purchased will be manufactured into tea by improved hand methods of rolling, firing, packing, etc. The product will be shipped to Shanghai and Hankow and contracts will be made with foreign purchasers. The estimated expenditure of the tea manufacture will be about $15,000 which will be borrowed in April and repaid in the following June from the proceeds of the sale of the product.

This modest expenditure will be able to conduct the model stations, educational campaign, lecture courses and to include the granting of subsidies. 360,000 tea bushes can be improved and 470,000 new bushes planted in the 40 sub-stations during the first year.

The distribution of the sub-stations in various places is far more effective than the concentration into only one station. These 830,000 bushes will produce more and better leaves and tea, for which better price can be expected. After the tea industry has been improved by the above methods in the districts where the stations are located, the funds will be transferred to another district and the same campaign repeated. Thus another 830,000 bushes can be improved or planted and similar increase of profits may be expected. Thus encouraged by the Government, the merchants, the gentry and the common people will be able to cultivate and improve tea for themselves. And hereafter other tea merchants and tea planters will be able to follow suit. In this way the China tea industry will no doubt be rejuvenated within a few years.

The estimated annual expenditure of the Tea Experiment Station:

(1) Extraordinary expenditure for the establishment of stations $4,000.00
(2) Annual expenditure ($984.00 per month)...$11,808.00
(a) Experiment Station ($500.00 per month) $6,000.00
(b) Sub-stations ($484.00 per month) $5,808.00
(3) Funds to be borrowed in April for the manufacture of tea and to be repaid in the following June ...$15,000.

Total $15,808.00

A Chinese Tea Association

To further the efforts of the Government the tea merchants have formed a Chinese Tea Association and a draft of the regulations have already been approved by the Ministry of Commerce, Agriculture and Industry. The essential projects of the Association for pushing the sales in foreign countries are outlined as follows: (1) To establish general offices of the association in Shanghai and Hankow; (2) To establish tea experiment grounds at important cities for studying and improving the methods of planting, picking, treating, and heating the leaves, and of creating new markets; (3) to translate articles of foreign newspapers or from foreign books, dealing with the tea business for the information of the Chinese tea merchants; (4) to organise a special bureau to fix prices for the different varieties of tea, to lay importance on tea trade marks, and to prohibit the manufacture of counterfeit goods; (5) to unite all tea merchants throughout the provinces in order to carry on the business in uniformity for the common interest of the tea trade; (6) to appeal to the President and the Ministry of Finance for protection in the tea market; (7) to organise a general company in China for undertaking the export business; (8) to carry out a vigorous campaign of advertising Chinese tea in foreign markets; (9) to write articles on Chinese tea in different languages to be published in pamphlets or in foreign newspapers so as to remind the world of the merits and reputation of the Chinese tea; (10) to establish branch selling shops in all the important cities in foreign countries so as to be in direct touch with the foreign markets; (11) to study the tastes of the foreign customers and to give away more samples of Chinese tea to foreign tea-merchants; (12) to select better seeds and to increase the output of tea.

THE STRAW BRAID INDUSTRY OF SHANTUNG

In 1898 almost the entire straw braid trade of Shantung was done through the old established business houses of Chefoo, but with the completion of the railway from Tsingtau to the interior of the province, and the improved facility for transportation of braid thereby, the trade has been entirely diverted to Kiaochow, with the consequence that Tsingtau is now the largest straw braid emporium in China.

The straw generally used in the province of Shantung is that secured from wheat. Small farms are found throughout the entire province, varying in size from 20 yards square to sometimes several acres, but are never found covering large areas as in the United States. The cultivation is carried out in the same manner as has been done for hundreds of years. No special precautions are taken to protect the wheat or to improve its quality, and the crops are dependent entirely upon weather and other natural conditions. The methods of cultivation have not passed the rudimentary stages. The manufacture of straw braid is confined to certain districts, and the quality of the braid produced is largely dependent upon the condition of the year's crop of straw. The crop of straw is cut with hand knives, the wheat or barley is sold for milling purposes, and the straw bought up by straw dealers.

These straw dealers sort the straws into lengths and qualities. The straws from the farmers are approximately 4 feet in length, but up to one foot from the roots is considered unusable, and the foot or so near the top of the stalk, after cutting off the head, is used for thatching purposes, and is sold by the straw dealers to the country people for that purpose. This leaves 2 to 2½ feet of straw, which is available for making braid. The straw dealers clip from the straws all pieces which can be used for first quality braid, pieces varying in length, 4 to 5 inches being generally sufficiently clear and perfect for this purpose; occasionally longer pieces are found, and in years when an exceptionally good crop has occurred, these longer pieces are more frequent. The remainder of the straw is used for the manufacture of the poorer qualities of plait.

The straw dealers dispose of their straw to the plaiters either as whole pieces of straw of the required quality, or split into strips. For the splitting process, small roughly made knives are used, having a point about one inch in length, which is inserted and the straw easily split into two, four or seven pieces of equal length.

The plaiting of the braid is carried out in certain districts of Shantung, and especially in and about the Sha River, known as the "Sha-ho district." This district consists of a series of small villages and farms, and it may be safely stated that almost the entire community, men, women and such children who are large enough to know how, are engaged in the plaiting. Hardly a villager can be seen without his bundle of straw under his arm walking about the streets or sitting upon his doorstep or that of his neighbor continuously plaiting.

It is said that the quality of the plait is largely affected by the weather and the feeling of the people, so that a superior quality is made in the summer, when the plaiters can remain outdoors in the sunshine. In the winter, when the extreme cold of Shantung confines the people to their houses, the braid is liable to be affected by the smoke of the lamps, charcoal fires with their flames, etc. The fact that all straws must be wet during the plaiting also affects the manufacture, as during the winter months, which are dry and cold, it is more difficult to handle the straws.

The plaiters have no other occupation than this, and find sufficient work for the entire year, although during the four or five weeks when the straw crop must be gathered they stop plaiting and assist in the fields.

The quantity of braid that a plaiter can make is dependent entirely upon the quality of the product. Split plait takes, according to width, from two to six days to make a piece of 60 yards. Split plait 10 to 11 millimetres (0.394 to 0.4334 inch) in width will average about two days' work for the average plaiter for a 60 yard piece, while the finer braid, measuring from 5 to 6 millimetres (0.197 to 0.0236 inch), would probably take five or six days. This is partially due to the fact that a plaiter cannot work so long on the finer grades of work, and in some cases will not do more than one or two hours' work a day on special quality goods, but will continue working on some inferior quality as a rest.

The pay of plaiters is very small, and would probably not average one cent in gold per day per man. It is almost impossible to get any definite idea of the income of a plaiter, as it depends largely on the skill of the operator, the number of people engaged in the work who are members of his family, the cost of straws, etc. The plaiters buy their straw from the dealers, and sell the manufactured braid to straw braid brokers, who pass through the villages at more or less regular intervals, and either purchase what braid is available or make contracts with the plaiters for supplying a certain quantity of the quality of braid required.

Braid is sold entirely by the Chinese "chih" or foot (14.1 American inches) by the plaiters to the brokers.

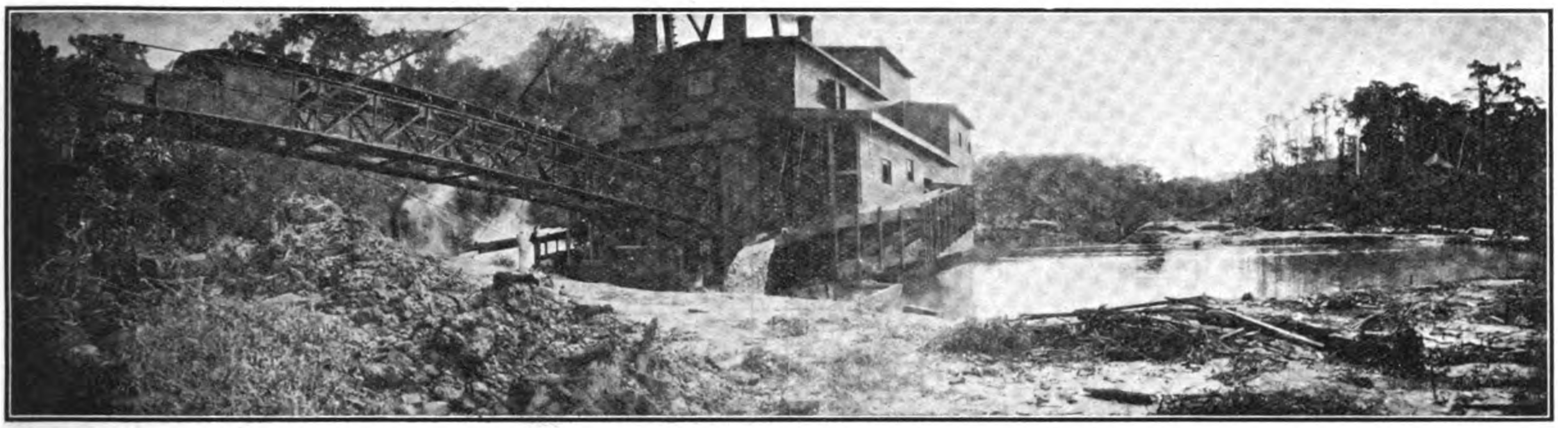
The Chinese dealers in the interior, who are located in the larger cities of the districts where the braid is manufactured, purchase from the plaiters and prepare the goods for sale to the foreign buyers. These dealers send their brokers throughout the district, either making contracts for the manufacture of the kinds of braid they require or buying what is available on the market, that is, what they are able to pick up already finished by the plaiters. This purchased braid is bought in its various odd lengths, varying from a few feet to many yards, and sorted into its various qualities. Where places are found which are off in color, or not up to the standard quality, they are cut from the piece, and the braid is thus sorted into the different qualities which have become known to commerce. A bundler then goes through the piles and connects the pieces together until he has a total length of 30, 60 or 120 yards, according to the kind of braid which he is working upon, and when the required length is completed rolls the braid into the skeins in which it appears on the market. The bundles are then packed into bales or cases, according to the variety, and are ready for shipment.

Braids vary in width from 3 millimeters (0.118 inch), which is probably the finest braid that can be made, to 30 millimeters (1.181 inches) or over. It is packed in bales covered with straw matting, and a bale contains 240 pieces, and costs approximately 25 cents gold per bale for packing. Split braid, or the more expensive kinds, is packed in cases containing 480 pieces, and costs for packing about 90 cents gold.

During the time that the braid is in the hands of the up-country dealers it goes through its bleaching process. It is hung in small, tightly closed rooms for a day or more, exposed to the fumes of burning sulphur in specially prepared tin boxes in cases.

The complete art of bleaching has never been discovered by the Chinese, and large quantities of the straw braid exported from China are sent to England, where they are rebleached. The great centre of the English straw braid business is in Luton, a small town in Bedfordshire 40 miles from London. Previous to the opening of the port of Tsingtau by the Germans, almost all the straw braid used on the Continent was shipped to London, sometimes rebleached at Luton, and reshipped to the Continent, but at the present time most of the braid intended for the Continent is shipped directly from Tsingtau.

Braid is occasionally shipped from China direct to the United States, and then sent to Luton for bleaching purposes, to be returned to the United States, but the more usual method is for American buyers to ship such braid as needs rebleaching direct to London, where it is forwarded to Luton, and after bleaching it is shipped to the United States from London or Liverpool, appearing in the American customs statistics as of British origin. There is practically no plaiting of braid in England at present, though formerly much braid was made in and about Luton.



GOLD DREDGING AT GUMAOS IN PARACALE DISTRICT

MINING PROGRESS IN PHILIPPINES

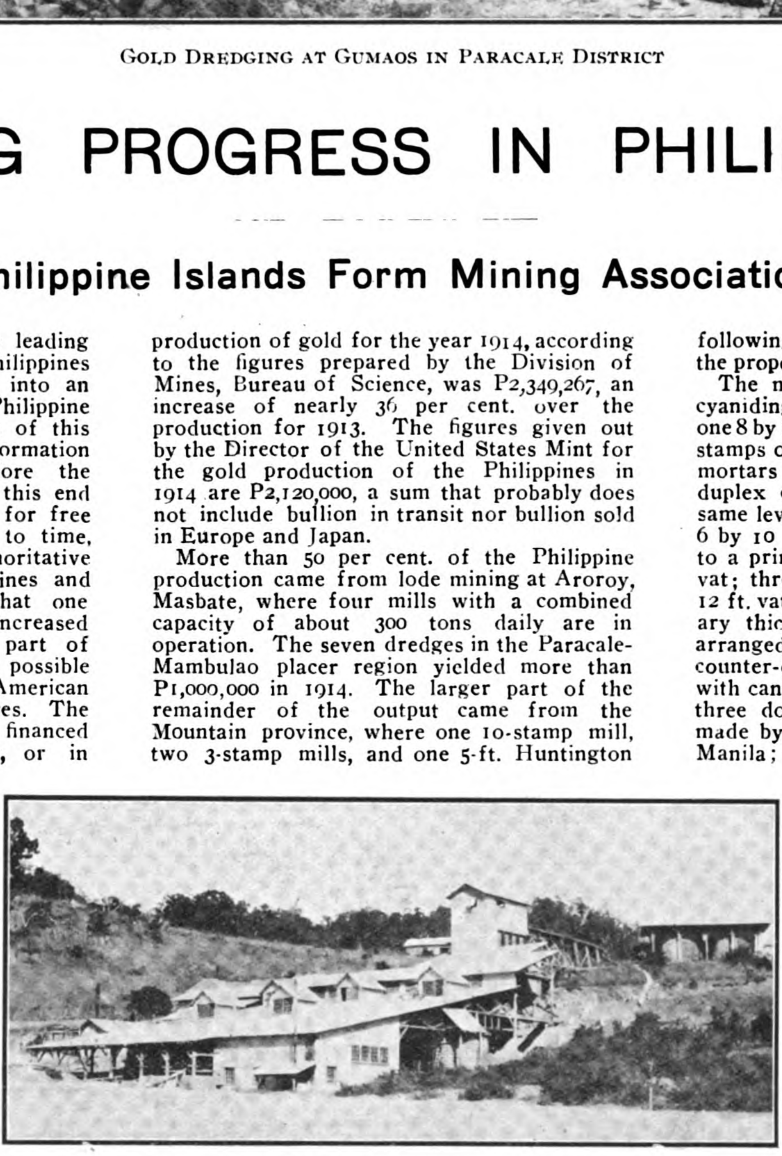
Philippine Islands Form Mining Association

The operators of fourteen of the leading gold-mining properties in the Philippines have recently organized themselves into an association to be known as the Philippine Mining Association. The purposes of this organization are to bring accurate information concerning Philippine mining before the public both locally and abroad. To this end the society will publish a bulletin for free distribution, to be issued from time to time, and will attempt to furnish authoritative information concerning Philippine mines and mining conditions. It is hoped that one result of this publicity will be an increased interest in local mining on the part of American investors. It has not been possible up to the present to interest any large American capital in Philippine mining ventures. The various concerns now operating were financed either locally, on the China coast, or in Australia and New Zealand. Judge Frank B. Ingersoll, general manager of the Gumaos Placer Co., managing director of the Malaguit Dredging Co., and an official in several other organizations, is president of the Association.

Another line of endeavor on the part of the organization will be an attempt to counteract the tendency toward increased taxation of mines, which was manifested in the last legislature, by educating the public to an accurate knowledge of Philippine mines and mining, so that they may be in a position better to judge as to the fairness of increased taxation. A tax of 1½ per cent. was imposed on the gross output of gold mines after the first of last January. The original law provided for a tax of 5 per cent. of the gross output of precious and semi-precious metals, but after a series of public hearings by the committee to which the bill was referred, the tax was diminished to 1½ per cent. and imposed on the output of gold mines only. Since the bullion from most of the mines carries a small proportion of silver, the tax applies to silver as well as gold in practice. Mining men generally opposed the taxation on the ground that the industry was too young to survive without serious injury. As it works out in the case of one of the larger companies, the increased taxes amount to about 2½ per cent. of the total capitalization.

In spite of adverse legislation, however, the last few months have seen much advance in the progress of gold mining. The Philippine production of gold for the year 1914, according to the figures prepared by the Division of Mines, Bureau of Science, was P2,349,267, an increase of nearly 36 per cent. over the production for 1913. The figures given out by the Director of the United States Mint for the gold production of the Philippines in 1914 are P2,120,000, a sum that probably does not include bullion in transit nor bullion sold in Europe and Japan.

More than 50 per cent. of the Philippine production came from lode mining at Aroroy, Masbate, where four mills with a combined capacity of about 300 tons daily are in operation. The seven dredges in the Paracale-Mambulao placer region yielded more than P1,000,000 in 1914. The larger part of the remainder of the output came from the Mountain province, where one 10-stamp mill, two 3-stamp mills, and one 5-ft. Huntington mill were operating during a part of the year. Filipinos, working on the Palidan slide near Mancayan, recovered more than P40,000 worth of gold by panning during the past year.



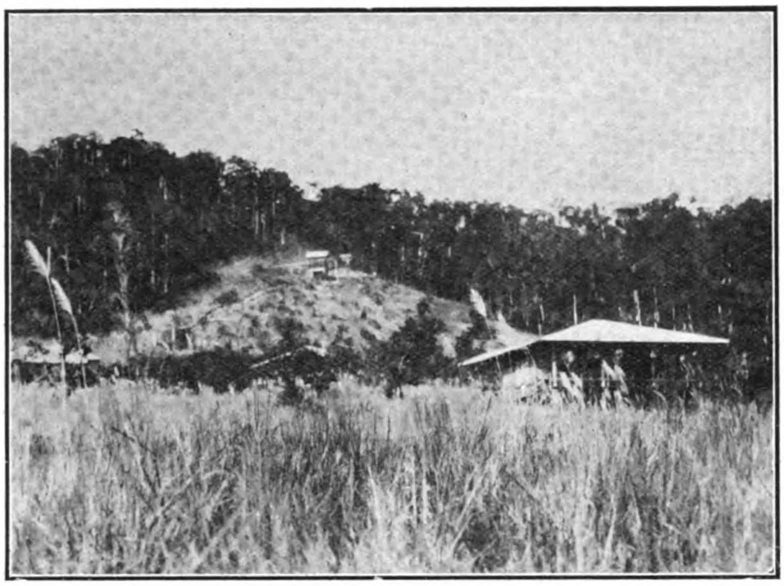
NEW MILL OF SYNDICATE MINING CO., MASBATE

The Benguet region in Mountain province will undoubtedly become an important contributor. The 10-stamp mill on the Headwaters property is being profitably operated under lease. The Acupan Mining Co. is assembling a 3-stamp mill on a claim, which is known to be good, on Batuan Creek, and the new 10-stamp mill of the Benguet Consolidated Mining Co. is rapidly nearing completion. Twice previously floods have carried away the mill on the Benguet Consolidated property, so that the new mill is the third to have been erected there. C. M. Eye, general manager for the Benguet Consolidated Co., who has had entire charge of the design and erection of the new plant has supplied the following notes on the present condition of the property:

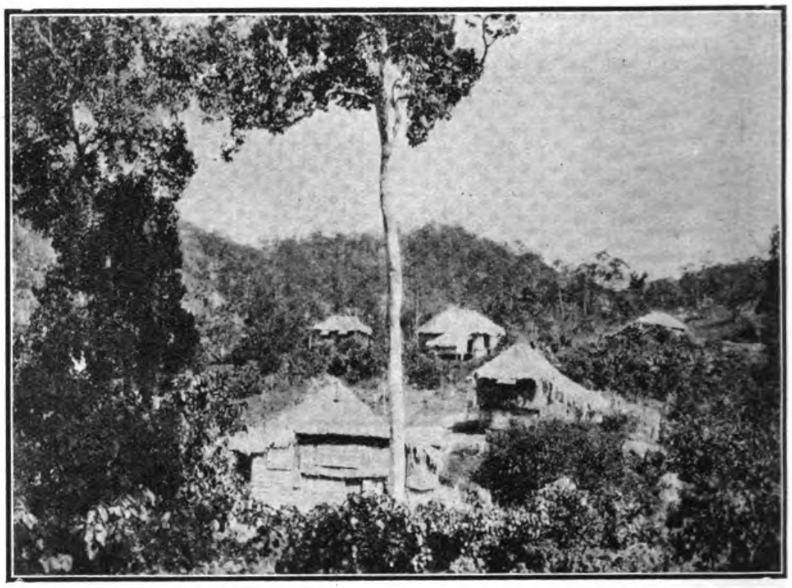
The new mill will be of the all-sliming, cyaniding type, and its equipment will include: one 8 by 12 Hercules Blake crusher: ten Hendy stamps of 1050 lb. with high narrow-discharge mortars set on wooden blocks; one Dorr duplex classifier in closed circuit and on the same level with a Denver Engineering Works, 6 by 10 ft. tube-mill; elevator from classifier to a primary Dorr thickener in a 25 by 12-ft. vat; three Dorr agitators in series in 14 by 12 ft. vats for continuous work; four secondary thickeners in series in 25 by 12 ft. vats, arranged to work on the continuous discharge counter-current system; one clarifying vat with canvas leaf-filters and wet-vacuum pump; three double-line, 7 compartment zinc-boxes, made by the Atlantic, Gulf and Pacific Co., Manila; two Gould triplex pumps for solution transfer, each with a capacity of 75 gal. per min.; a battery of Gould diaphragm pumps between thickeners for pulp transfer; an automatic tailing-sampler following the line of vats; and a complete clean-up equipment including a Case oil-fired tilting furnace. The solution-flow is recorded automatically in tons per 24 hours by means of a recording-gauge on a small vat, from which the solution escapes through a calibrated standard orifice. All tankage is of corrugated steel, the choice of material being governed partly by the saving made possible in freight charges, which are excessive in this region.

Power will be distributed by General Electric motors; the stamps are on a 25-hp. back-geared motor and the tube-mill is operated through a friction-clutch by an ordinary 50 hp. motor. The total motor horse-power is 105, while the maximum load with the crusher in operation is estimated at 100 hp. Hydro-electric power is to be generated by a Pelton-Doble wheel direct connected to a 120-kw. generator, situated down-stream from the mill. The pipe-line is 6000 ft. long and yields a head of 300 ft. gross, 260 ft. net, with a flow of 5 second-feet. The diversion-dam is made of logs on a concrete footing and is 18 ft. high by 45 ft. long. Electric current will be transmitted at 2380 volts over a transmission line 2400 ft. long to the mill, where the voltage will be stepped down to 220.

A new adit is being driven from the lowest practicable elevation to drain the old workings. This adit will be about 500 ft. long when



HEAD BIN AND SITE OF SYNDICATE MINES

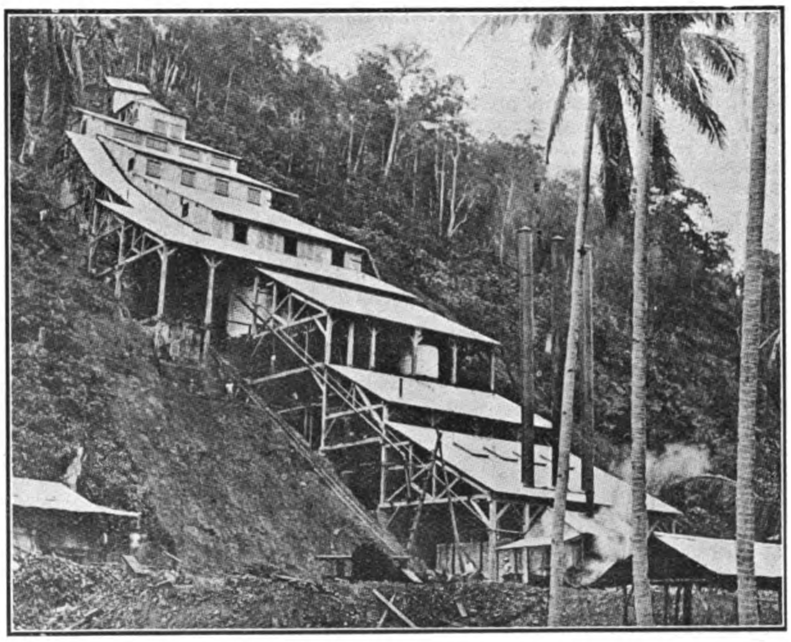


QUARTERS OF MINERS ON SYNDICATE CLAIMS

it reaches the vein. A new adit will also be driven from the present mill-site to the upper levels of the mine to serve for a haulage-way. An old cross-cut is being extended on the line of this adit and during the advance the cross-cut recently passed through 4½ ft. of ore assaying 180 pesos per metric ton. Concentrate from this ore assayed more than 4000 pesos per ton. The vein in the old mine is being developed to the eastward by a drift along the hanging wall with cross-cuts to the foot-wall at 50-ft. intervals; the first of these cross-cuts revealed 6½ ft. of ore assaying 160 pesos per ton, while the second cross-cut, just completed, encountered 9½ ft. of ore assaying 70 pesos. On the level of the old drainage-adit; which is about 80 ft. below the new mill-adit, there is more than 1000 ft. of old workings which were driven through good ore. This part of the mine is now flooded but will be unwatered by the new adit.

The Cansuran Placer Co., which recently began hydraulicking operations on Cansuran Creek about 12 kilometres south of Surigao, the capital of Surigao Province in Mindanao, will also be a producer of gold this year. The company is hydraulicking several adjacent areas of coarse gravel aggregating 325 acres. The ground was taken up on the recommendation of R. Y. Hanlon, who tested the gravel by digging a series of 181 holes and obtained an average of 44 centavos per cubic yard over the territory to be worked. The average depth to bedrock is 4 yards. The gravel is coarse but the individual boulders are embedded in clay. Water is obtained from the head of Tuganan River and conveyed to the claims through ditch, flume, and pipe-line with a total length of over a mile. The head varies from 100 to 300 ft. over different parts of the ground to be worked. Two 6-in. monitors and one 7-in. monitor are in place and an area of about 5 acres will have been cleaned-up within a short time. The work has been hampered by a shortage of water during the present general drouth.

The Australian dredges, at Paracale, which now number four, have had a normal run during the past year and yielded the usual dividends. The Malaguit dredge has lost some time because of the necessity of replacing some of the machinery, but has made a generally satisfactory record. The Gumaos dredge has finished its second year of operation with a total production of P912,205 (two years and three months time). The sum of P 535,000, or 107 per cent. of the capitalization, has been distributed in dividends during this period. The average value of the Gumaos ground for monthly dredge-runs has varied from 5 centavos to P1.28 per yard. At places the dredge has dug to a depth of 52 ft., while elsewhere bedrock was encountered at 20 ft. or even less. These data afford an idea of the irregularity of the dredging ground in this district. The average value per cubic yard for the period of operation has been 49 centavos. The average depth to bedrock has been about 35 ft. and the average cost of dredging, about 18 centavos per yard.



MILL OF COLORADO MINING COMPANY

According to Press Bulletin 40 of the Bureau of Science, Manila, the division of mines has received a number of inquiries concerning the discovery of gold near Iligan, Mindanao, which was reported in the local press several months ago. The discoverer of the new field is Allen Smith, Jr., of the Philippine Scouts. He has released to the public certain information supplied by him to the Bureau of Science. The claims located are 12 miles east-northeast of Iligan. The deposit is a conglomerate. Twenty assays have been made on the material, 17 of which return from P6 to P30 per ton. If the samples were properly taken, these results are interesting. There is plenty of conglomerate in the Islands, but it is not generally of any commercial value. An engineer made an examination of the area some months later.

THE LUBANG GOLD DISTRICT IN SOUTHERN BENGUET

[BY V. E. LEDNICKY, PHILIPPINE BUREAU OF SCIENCE]

The steady production of a small amount of gold during the past few months has attracted attention to the Lubang district in Benguet Province. This district is distinct from the Baguio region and gives enough promise of becoming a producer of gold to merit description.

Gold was first found in the Lubang district by the Igorotes, who panned along the creeks and also worked on one or two small veins. Probably this work had begun at a very early date. Their workings and small stone mills used to grind the ores can still be seen.

The first Americans to go into the district were ex-soldiers with mining experience, and some of the original locators are still there. They have kept up their prospecting and development work until they are well acquainted with the more prominent veins of the country.

The following notes were made during a visit of a few days to the workings on the located claims.

The Lubang district is situated on Lubang River, in the southern end of Benguet Province, about 40 kilometers from the nearest railroad. Lubang River is a branch of the Tubuoy, which flows into Ango River about 50 kilometers from its mouth. Tubuoy River, with its several branches, drains all of the goldbearing region of southern Benguet. About 5 kilometers above Binalonan, Pangasinan Province, it flows out of the mountainous country through a steep-walled cañon on to a flat, sandy plain, across which it meanders for a distance of about 20 kilometers to its mouth. The floor of the

cañon is covered with coarse gravel, into which the small, swift-flowing stream sinks at intervals, leaving stretches of dry river bed. During the dry season the volume of water is small, but the appearance of the cañon floor indicates an abundance of water during the rainy season. The lower part of the cañon has very steep walls, varying in height from 15 to 30 meters. As you go upstream the walls gradually diminish in height until Lubang River is reached. This river also has very steep walls.

The mines of the Lubang district may be reached from Magaldan, the end of the railroad, by means of automobile to Binalonan and on horseback from there to Lubang. Owing to the numerous trails it is advisable to take a guide from Binalonan, who can also act as a carrier.

The trail across the plain from Binalonan and up Lubang River cañon is passable for carabao carts, and the trip can be made without difficulty. The carts haul about 200 kilograms at a load and receive 5 pesos* per load from Binalonan. During the dry season regular trips are made, but in the wet season the trips are necessarily dependent upon the weather. The freight rate from Magaldan to Binalonan is 0.5 centavo per kilogram.

The country around the mines is almost bare of timber suitable for mining purposes. The local supply of firewood is insufficient for boiler fuel. Short timbers for stoping can be obtained at about 50 centavos each, but they do not serve for drift sets or lumber. A species of pine tree grows on the bars and low banks of Tubuoy River, attaining a maximum diameter of 35 centimeters; they are tall enough for three upright drift timbers. This class of wood has never been tried in the mines at Lubang, but the Bureau of Forestry recommends it as a very durable material.

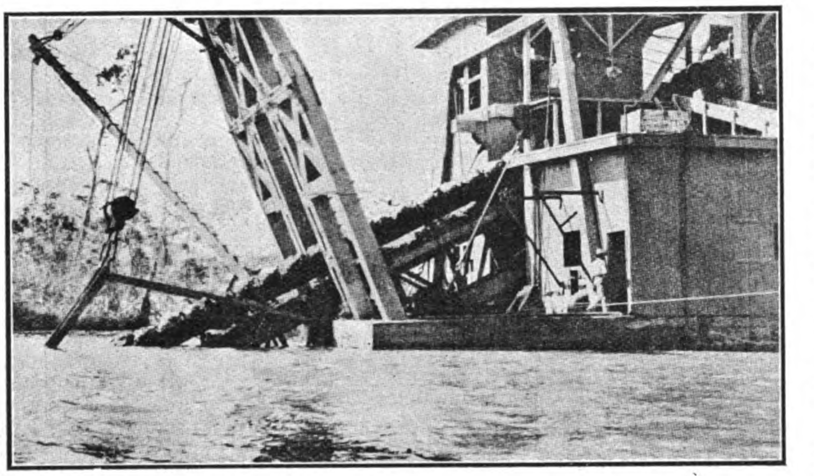
A considerable growth of bamboo around the Mentzer camp would furnish building material for laborers' houses, and there is an abundance of grass to cover the roofs. Grass for forage is plentiful during the rainy season, and would be an asset in case more animals were used in hauling supplies.

The rainy season begins in May and lasts through October; during these months it is rather difficult to use the cañon road, and it is sometimes necessary to follow the mountain trail on the top of the ridges. During the rainy season there is an abundance of water for mining purposes. A fall of 100 meters could be utilized for the development of water power without an excessive expenditure. At present a supply of water sufficient for a 10-stamp battery is available.

In outline, the geology of the district is as follows: Two distinct formations are present, the Tertiary sedimentaries and the older extrusives and plutonic rocks. The district may be said to be on the southern edge of the extrusive in Benguet Province, described by Eveland † and Smith.‡ The formation downstream from the Mentzer camp is mostly conglomerate of considerable thickness, capped in places with a comparatively thin layer of limestone. The conglomerate contains igneous and sedimentary rocks varying from pebbles the size of peas to bowlders 1 meter or more in diameter. The overlying limestone is very hard and pure enough to burn for lime, although it contains some quartz and is somewhat colored by iron stains. The igneous rocks, which probably represent the basal formation in the district, are predominantly holocrystalline, but andesites and porphyries are found in various places.

The economic geology of the district cannot be well determined with the development work that has been done, since none of the work extends beyond the oxidized zone. In general, the country rock of the district is diorite, but small intrusive dikes of andesite and porphyry are common. The diorite has suffered considerable disturbance, and the veins are fillings of fissures produced by movement. The fissures occur along nearly parallel lines with a general east-west direction. The irregular, shattered zones between the fissure planes have been altered, and broken quartz fills the cracks and seams. The values in the fissures are not uniform, but appear to be confined to irregular quartz stringers throughout the vein material of broken quartz and clay. Rich pockets of visible gold are found, but they are not very large. Several wide veins of quartz can be traced along the ridges, and some of them show good values on assay. It is possible that more uniform values could be obtained from them than from the softer veins that have been developed. All of the development work indicates that sulphides are to be expected with depth. Free-milling ores are not to be depended upon, therefore, for large operation.

One or two small companies have attempted to exploit the district, but lack of sufficient capital has kept them putting the mines on a paying basis. Two small mills are operating.



DIGGING LADDER OF MALAGUIT DREDGE

One is under the charge of George Mentzer, and the other is under J. H. McMichael.

The claims of the Lubang district may be divided into three groups: the lower, the central, and the upper. The majority of these are included in the lower group under the supervision of Mr. Mentzer. He has developed several veins on the property and has completed about 185 meters of tunnel. Most of the veins have a strike of about north 80° east, dip 55° south, and can be traced to the ridges on the opposite side of Tubuoy River. They vary in width from 60 centimeters to 2 meters and have a very great range in value. No work is done in ground that does not pan free gold, but the pannings are not always an indicator of the actual assay value. One vein, 60 centimeters wide, known as the sulphide vein, pans some free gold but assays a great deal more. It has been opened on two levels, 30 meters apart, and shows no sign of pinching out. At present most of the ore for the mill is being stoped on the Independence claim. This ore is low grade, but shows richer sulphide values with depth.

The central group of claims belongs to Mr. Horn. He has done development work on all the claims and has some exceptional values. A bull-quartz vein 2 meters wide, which outcrops along a ridge for a hundred meters or more, is perhaps the best prospect on these claims. The values are not high on the surface, but tunnels into the ridge have struck rich ore beneath the surface.

On the upper group of claims Mr. McMichael has erected a small mill and has driven a total length of about 500 meters of tunnel on a half dozen veins. Some rich ore has been encountered, but the oxidized zone is shallow and the work has not been carried into the sulphides. Some coarse, visible gold is obtained, but most of the free gold is very fine. At present Mr. McMichael is working in a new place where values seem to be very generally distributed. The ground is very much broken, and as yet no definite vein has been found, but good leads are being followed. In one of the tunnels a sample of red clay taken by the Bureau of Science showed over 1 per cent of mercury. This is probably the source of the cinnabar that can be panned along Tubuoy River. One vein recently opened by Mr. McMichael is very rich in galena and sphalerite. It contains some silver, but not enough to make it valuable.

The Mentzer mill, situated at the lower end of the district, is a 3-stamp prospecting mill made by the Mine & Smelters' Supply Company of Denver, Colorado. The stamp product is amalgamated, but concentration over a Challenge table has been attempted. The ore is sorted at the mine, and only the small material is sent to the mill. Sledges drawn by bulls are used for transporting the ore. A small tramway or chute would undoubtedly be cheaper, as the sledge is very slow and rather expensive. The ore from the sledges is dumped above the mill and shoveled down to the stamps. It is fed into the battery by hand from a trough at a level with the top of the mortar. The three 250-pound stamps are not heavy enough to crush hard rock, and only pieces of quartz 2 centimeters in diameter or less can be taken. When crushing soft ore, an output of 1.5 tons per stamp per twelve hours is obtained through a 30-mesh screen. Mercury is fed into the mortar, and a large percentage of the recoverable value is obtained by inside amalgamation. The discharge passes over a 2- by 8-foot amalgamation table with two silvered copper plates. A triple mercury trap at the end of the table catches most of the excess mercury and gold that escapes the table. About 80 per cent of the free gold in the screen product is amalgamated on the first 60 centimeters of the upper plate, and the other 20 per cent is caught below or is lost with the slimes. No amalgamation tests have been made to ascertain the exact recovery, but probably the loss of free gold is small.

The power is furnished by a 3-horsepower Hornsby oil engine, which uses about 19 liters of kerosene every twelve hours. The engine has given excellent service for over one year and in that time has not needed repairing. The mill is run only twelve hours per day and requires a crew of one American and two Filipinos. An attempt will be made to run it the full twenty-four hours in the future.

An attempt to concentrate the tailings on a Challenge table was tried for some time, but the concentrates never proved rich enough to pay for smelting. Mr. Mentzer tried mixing the concentrates with clay and making balls, which he roasted on a wood fire. The method was successful as far as oxidizing the sulphides was concerned, but he had difficulty in milling the roasted product. The clay blinded the screens, and the ashes from the fire fouled the plates so that they were very hard to dress for several days afterwards. Owing to this difficulty and also to the extra work entailed, the concentrator was abandoned; the tailings go directly through the launder to the creek. It is suggested that it might be profitable to bank the tailings and keep them for future cyaniding.

The mill on the upper group of claims is not working at present, but will be run continuously as soon as the rainy season starts. It consists of a 3.5-foot Huntington mill of

* One peso Philippine currency equals 100 centavos, equals 50 cents United States currency.

† *Phil. Journ. Sci., Sec. A* (1907), 4, 207.

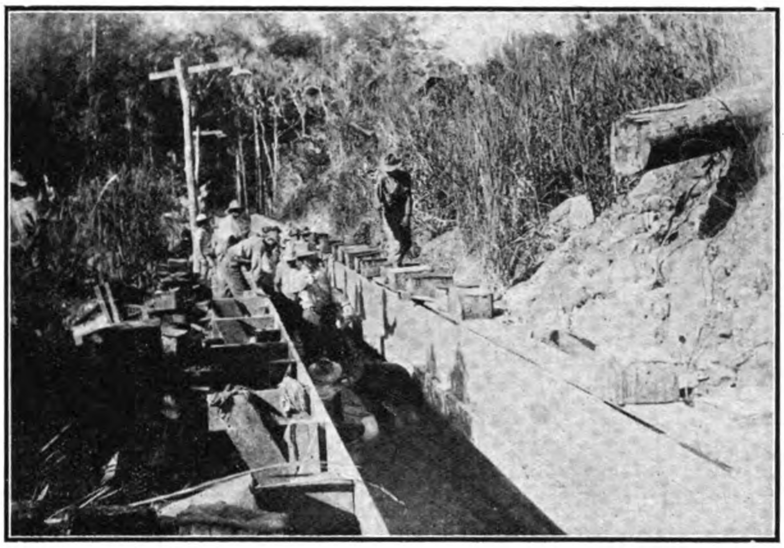
‡ *Ibid.* (1911), 6, 429.

the improved type, bolted securely to a foundation of heavy timbers. It is equipped with 60-mesh punched slot screens, and the crushed product passes over silvered copper plates and through a launder on to a 3-by 8-foot bumping table made after the Gilpin County Colorado table. This table was built in Manila and seems to give good results, but as yet nothing has been done with the concentrates. Amalgamation inside the Huntington mill catches almost all the free gold.

This mill is run at 90 revolutions per minute and gives an output of 4 to 5 tons per twenty-four hours through a 60 mesh screen if fed with an ore not coarser than 2.5 centimeters maximum diameter. A 12-horse-power Olds oil engine has been used for power, but milling was discontinued because of the excessive fuel cost. The kerosene consumption was 28 liters in twelve hours, and the estimated cost was about 17 centavos per liter. It was decided to store ore during the dry season and to run the mill only during the rainy season when water power could be obtained.

A 5-meter overshot water wheel was built this year and was operated about thirty days before the rains stopped. It is built entirely of wood and seems to give excellent results. The power is transmitted by a belt from a 2-meter fixed pulley directly to the Huntington mill. The installation of a small primary crusher for which water power is available would undoubtedly prove economical.

The Lubang district will probably some day be a fair producer of gold. The values are there, but more development work, which will entail the expenditure of several thousand pesos, must be done before a mill could be built.



CLEANING UP SLUICE BOXES OF CANSURAN PLACER, FIRST HYDRAULIC WORKINGS IN PHILIPPINES

MINERAL RESOURCES OF SURIGAO PROVINCE

[BY WALLACE E. PRATT OF THE PHILIPPINE BUREAU OF SCIENCE]

Surigao Province has been a producer of gold for many years, but promises now to become more important in this respect through the operations of the recently organized Cansuran Placer Company. Attention has recently also been directed to Surigao's mineral resources by reason of the discovery by Mr. H. F. Cameron, engineer for the Department of Mindanao and Sulu, that a large area along the eastern coast of the province is covered with iron ore.

Gold mining in Surigao began in very remote times. The metal, detected first in sands of the rivers and beaches, was traced almost at once to its original home in small quartz stringers and pockets in the andesite, which constitutes a large part of the land mass of the region. Although small, these quartz bodies appear to have been rich in gold at the surface, and at many places the ore has been taken out from open trenches and shallow holes over considerable distances.

One of the best known of the early prospectors in the Surigao gold region was a Frenchman referred to by the Filipinos as Don Maximillano. Apparently this man explored most of the known gold localities in Surigao early in the last century. He is said to have died at Surigao sixty-two years ago. It is stated that he worked first with the placer gold in the vicinity of the present holdings of the Cansuran Placer Company about 11 kilometers south of the town of Surigao. Later he prospected the gold-bearing quartz at Tinabingan, Placer, but ultimately he moved to the eastern margin of Lake Mainit, where he made his home and did most of his mining.

There is to-day little evidence of mining on the site of Don Maximillano's property at Mainit. Bricks are found in one locality at the edge of the foothills surrounding the lake, which the older residents believe to have been part of a furnace used by the Frenchman. Depressions which probably mark former shallow pits are found in the same neighborhood. A little gold is obtained by panning in an adjacent gully, and assays of a few pieces of ore encountered near one of the gold pits show fairly high gold values. There is no showing of ore in place, however, and it appears improbable that much mining was done here. The Frenchman is believed by the local people to have been rich, but he might easily have made enough from agriculture in this fertile region and from the sawmill, which he operated in clearing his land, to impress his simple neighbors.

A former mine which is famous in Surigao Province was located on a small island named Campiña, east of the Island of Masapelid in the jurisdiction of Placer. Gold was discovered on Campiña, the area of which is less than 1 hectare, about the year 1883, and mining was carried on assiduously for a period of two years, according to the presidente of the town of Placer. Mr. Maurice Goodman, a mining engineer, formerly in the Bureau of Science, visited Campiña and found rather extensive old workings, but although he took numerous samples, his assays showed only very low values in gold.* It is probable that the miners followed the usual rich stringers in andesite and exhausted the small deposit. It is estimated by some of the old miners that Campiña yielded 30,000 pesos† in gold.

C. A. Briggs, an American prospector who spent years in the Alaskan gold fields, is at present in control of the old mines at Tinabingan, Placer. Mr. Briggs has explored the lines of open trench and pits which mark a low ridge just back from the coast and has driven tunnels on several of the leads. He states that he has obtained high assays from various samples, but that samples over extended faces show less gold. Mr. Briggs is now devoting all his attention to exploring a new lead which reveals a width of about 2 meters of closely intersecting quartz stringers in silicified andesite and andesite breccia. A sample which he believes to be representative of the full width of this lead showed upon assay a value of 25 pesos per metric ton in gold. Although the mineralization at Tinabingan consists only of stringers and pockets, it is somewhat regular in that the strike of the leads at three different openings over the claims is constantly east-northeast.

William Ashburner, an American mining engineer who was prominent in his profession at the end of the last century, visited Surigao in 1883 and inspected much of the mining that was then in progress. He reported the presence of gold on Cansuran Creek near the town of Surigao in pockety stringers of quartz and calcite cutting slate. He also found angular gold in the placers at the mouth of Bigaa Creek, below Cansuran, which he believed to have come from the decomposition of the prevailing country rock, and at Tinabingan, Placer, he noted fragments of gold-bearing quartz but saw no veins.

According to the Spanish engineer Centeno, the most important gold district in Surigao is in the mountains of Canimon, Binutong, and Caumahat, which lie "a day's journey" (in reality about 11 kilometers) south of the town of Surigao. Around the base of these three mountains or, more properly, hills, lies the gravel which is now being hydraulicked by the Cansuran Placer Company, and on the hills themselves lode claims are being prospected by the Surigao Mining Company. Centeno found veins in a talcose, serpentinoid slate, varying up to 10 centimeters in width. Some of the veins were quartzose, others were made up of calcite; in the calcite veins he noted chalcopyrite, galena, and zinc blends.

American prospectors were quickly attracted to this region following American occupation, and Messrs. C. A. Briggs, E. O. Parker, and R. W. McCullough obtained possession through mineral location and through the purchase of a Spanish grant to the placer property on Cansuran Creek and to the lode deposits on the hills examined by Centeno. The placer ground has been leased to the Cansuran Placer Company. The lode properties are controlled by the locators as the Surigao Mining Company.

In the openings which the Surigao Mining Company has made recently on Canimon and the adjacent hills ore has been encountered in andesite, in indurated shale and sandstone, and in a laminated, serpentinous rock which doubtless is the slate noted by Centeno. The gangue is quartz in the andesite and is usually dark-colored. In the shale and sandstone quartz and calcite both occur, and as recorded by the earlier observers form intersecting stringers through the rock. Visible gold can be detected in weathered portions of some of the ore, and angular, fairly coarse gold can be panned from the surface. The quartz in the andesite carries antimony in places, probably as the mineral jamesonite. All the fresh ore is pyritiferous. No veins of any size have been defined by the work so far, but large blocks of quartz and silicified andesite are encountered on the hillsides and in the streams. Some fairly high assay results have been obtained on samples taken by the men in charge of the work. There is a tendency

* *Min. Res. P. I. for 1908* (1909), 40.

† One peso Philippine currency equals 50 cents United States currency.

toward a northeast or east-northeast alignment in the strike of the mineralization and in the structure of the bedded rocks, although in neither case is the strike constant.

Limestone is found associated with the indurated shale and sandstone, but in undeterminable relation. Away from the vicinity of the andesite the sedimentary rocks, especially the shales, are less disturbed and appear to form an extensive series. In addition to the rocks already noted there is a serpentine-schist at the base of the hills which forms the bedrock over a part of the placer area. Still another rock, not found in place, but scattered along the streams in large blocks, is a red, quartz-veined slate or indurated shale, parts of which assume the character of jasper.

The relations of the various rocks to each other are not clear. Probably the schist is the basal rock of the region, the sedimentaries having been deposited upon it and both rocks intruded later by the andesite. The formation of veins and the metamorphism and dislocation of the sedimentaries are probably due to the dynamism and mineralization accompanying or following the intrusion of the andesite.

The general character of the mineralization, the variety of rocks encountered, and the apparently nonuniform distribution of the gold values in this region are suggestive of conditions at the Tumbaga Mine, Mambulao, Camarines, where rich pockets of gold are found in calcite and quartz veinlets cutting andesite and indurated shale.

The gold-bearing gravel now being exploited by the Cansuran Mining Company in the vicinity of these vein-deposits in Surigao has proved since hydraulicking began to contain exceedingly large bowlders. It is not confined in its distribution to the present river beds, but covers the intervening ridges and slopes as well. It is rarely more than 5 meters in thickness, and in places the underlying bedrock is exposed at the surface. The large bowlders are partly rounded with occasional angles, while the small stones are worn smooth. A striking feature of the placer area is the extent of the old workings which are to be inferred from the remains of ditches, shafts, and rock sluices encountered everywhere.

Most of the gold is rounded fairly coarse, varying from the size of rice grains up to rare nuggets of 30 grams' weight. A small proportion of sharp, angular gold, somewhat darker in color than the rounded gold and usually in smaller particles, is also obtained. Some specimens of both classes of gold inclose quartz. The gold in the nuggets is spongy or porous, and the larger nuggets may be broken readily. Melted into bullion the gold retains its brittle character, and the bars crumble or break if they are roughly handled. The average bullion has a fineness of about 770 gold.

Different observers have speculated as to the probable source of the gold in the Cansuran placers. It has been suggested that the rounded gold nuggets are from a distant source and have been carried to their present position by flowing water while the sharp, angular gold came from the veins in the hills adjacent to Cansuran Creek. The fact that the gravel is distributed over valley and ridge alike has been cited as evidence of the former existence of a great river, the bed of which was at a level corresponding to the present ridges and was flanked on either side by a strip of gravel wash about 1 kilometer wide. The rounded gold presumably was brought from a distance and deposited with the gravel. It is further supposed that subsequent differential elevation of the land mass, perhaps coincident with the intrusion of the andesites, interfered with the flow of the former river and left the gravels to be worked over by the modern drainage system.

It is apparent from the distribution of the gravel and the size of the bowlders that the assumed former river must have been of great volume and consequently probably of great length. The land mass of Mindanao is generally believed to have been smaller formerly than it is at present, and it is difficult satisfactorily to place the course of such an ancient river. Moreover the character of the gravel—large bowlders in a clay matrix—is not that of old river bars. According to the tests, also, neither the gold nor the gravel is regularly distributed over a large continuous area such as the flood plains of a large river would form, but is confined to detached sections in a general alluvial region. There are no conspicuous evidences of a typical terrace structure in the gravels, but the wash follows closely the present topography, covering the lower ridges, the slopes, and the valley floors alike.

Consequently the correctness of the theory as outlined is questionable. From its character and distribution the gravel can be more satisfactorily accounted for as talus and piedmont deposits from the adjacent mountains, which, as has been shown, are gold-bearing. The rounding of some of the gold and of the gravel might have been accomplished by the abrasion incident to slides and other processes of degradation on the local mountain slopes. The stringers and small veins in these mountains are rich in free gold and might well have yielded nuggets of considerable size. The sharp, fine gold found in the placers may come from the numerous veins in the schist which forms the bedrock over the placer area itself. The fact that there is antimony in the gold-bearing quartz of the mountains and that alloyed antimony might be responsible for the brittle character of the nuggets in the placer is likewise suggestive that the nuggets came from adjacent lodes.

The iron-ore deposits of Surigao Province have just been surveyed by the division of mines of the Bureau of Science, and while it is not possible to draw conclusions until the results of a large number of analyses can be obtained, it appears that the findings of Mr. Cameron as reported by him originally are verified. The deposit appears to be similar in character to the Mayari iron ores which are being exploited in the vicinity of Nipe Bay, Cuba. The ore is a variety of laterite, a decomposition product from the weathering, under tropical conditions, of subsiliceous igneous rocks, and consists of hydrated oxides of iron in the form of clay and small concretions. The parent rock in Surigao appears to be a peridotite largely altered to serpentine. It occurs along the eastern coast of the province from the barrio of Capandan, Guigaquit, to the barrio of Adlay, Cantilan, a distance of 20 kilometers, and with its cover of iron ore extends inland over a belt ranging up to about 6 kilometers in width. Flanking this area are sedimentary rocks, tuff-sandstones, limestones, and shale. The vegetation, which is very sparse and of a peculiar character near the coast, gradually becomes more abundant and normal in character toward the interior.

The iron-ore deposit is unusual in that it covers a thoroughly dissected country made up of fairly sharp ridges and precipitous valleys. Other known iron-ore deposits of this class occur on nearly level plains or plateaus. Surigao is also a region of heavy rainfall (more than 3 meters annual) with practically no dry season, whereas one of the theories brought forward to explain the origin of ferruginous laterites involves a condition of alternating and marked seasons of drought and rainfall. According to the first analyses made on samples taken by Mr. Cameron the chemical character of the material is such as to make it a valuable iron ore. A large number of samples taken so as to reveal the character of the deposit as a whole are now being analyzed.

NEW AUSTRALIAN STEEL PLANT

The new iron and steel works of the Broken Hill Proprietary Co. (Ltd.), at Port Waratah, Newcastle, New South Wales, occupy a site of 264 acres in close proximity to the rich coal fields and limestone deposits, and have splendid harbor facilities. The entire plant, which has been installed at a cost of about $7,000,000, consists of the most up-to-date and approved American machinery for steel making, and was erected under the management and supervision of Mr. David Baker, a well-known American steel expert, and the various processes of manufacture are in charge of American superintendents. It is the intention of the management to limit activities for the present to the making of steel rails, it being estimated that the one blast furnace and battery of open-hearth furnaces, working at full capacity, can supply 400 tons of steel per working day to the bloom mill and rail mill, which would be equivalent to 120,000 long tons of steel rails per annum. The total yearly requirements of Australia for steel rails are considered to be about 150,000 tons, while the total imports of iron and steel in a more or less manufactured condition were for 1913 over 400,000 tons, with a local value of about $36,500,000, the principal items being: Pig iron, $1,080,000; plain and sheet, corrugated, $4,550,000; galvanized, not corrugated, $4,900,000; steel rails and fishplates, $6,230,000; bar, rod, and angle, $5,730,000; iron and steel wire, $3,110,000; pipes and tubes, $4,230,000. The present epuipment does not provide for the production of rods, sheets, structural steel, or wire, but the plant is so laid out that the capacity of the rolling mills can be quadrupled by the addition of other blast furnaces without impairing in any way the economical handling of materials.

The company already has in hand contracts to supply the Federal Government with 30,000 tons of rails (about 250 miles), and the New South Wales Government has ordered 750 tons weekly for 12 months. A smaller plant, belonging to G. & C. Hoskins, exists at Lithgow, New South Wales, which at the present time has in hand contracts for 400 tons weekly, 12 months. Although this new enterprise will seriously affect the sale of American steel rails to Australia, which in recent years has amounted to about $5,000,000 per annum, it is gratifying that after a careful study of the largest steel plants in Europe and the United States, American equipment was selected as the best and most efficient. It also assures American manufacturers of such equipment that further business will follow when the plant is enlarged.

AUSTRALIAN SUGAR SHORTAGE

Australia will soon face a serious shortage of sugar, and importations will be necessary to satisfy local demands. The Colonial Sugar Refining Co., Ltd., states that it would be willing to import, but that to do so at prices as at present fixed would involve a loss of about $35 a ton. A responsible authority in Sydney estimates that 100,000 tons of foreign sugar will be needed to make good Australia's deficiency.

MINING IN MANCHURIA

Japan and Mining in Kirin Province.

In the course of an article on conditions in Kirin province (Manchuria) a special correspondent writing to the *Peking Gazette* has the following to say with regard to mining:

"According to the new Chino-Japanese Agreement, Japanese subjects have the right to select mines in three distinct districts to be known as mining districts in the Southern portion of Kirin Province. The actual sites of these districts are not yet determined or even surveyed, for mining operations in Kirin Province have always been carried out on a very crude scale, and everything connected with the mining industry is very vague and has yet to be moulded into shape.

"The most northern locality, where mining operations may be carried on, is Kang Yao in the Kirin prefectural district and some 100 *li* North of Kirin city, lying not far from the Sungari River. Kang Yao itself is a fairly important and well-known place as it is here that all kinds of earthenware utensils, tubs, etc., are manufactured, the district being rich in fireclay. A few miles away coal is found, being worked on a small scale by the natives; it is used by the makers of earthenware as well as in Kirin city, but as only working in a primitive manner has been carried on it is impossible to say whether the prospects of successful mining are good or not. But the acceptance of the opening-up of this district by Japanese has one important feature; *and that is that the Northern Boundary of the Japanese sphere of influence is carried some 100 li or more north of Kirin city which has until now been generally assumed to be the boundary.* This in time may acquire a very vital military significance for Russia as well as for China.

"The second locality, Chia Pi-kou, is situated some 400 li up the Sungari and nearly due south of Kirin City. Here gold mining will be permitted, but the district has been but little explored and in the past natives have only been washing the alluvial to be found in the riverlets and old tributary beds that run into the main river. The venture will therefore be entirely speculative. The third mining district where coal and iron may be mined by Japanese is known as Ho-Ling and the locality as Sha-Sung Kai, some 150 *li* to the South-West of Yenchi and not many miles from the Tumen river. As the Chinese population is very scant in this district the Chinese know little or nothing about its possibilities, but since both Japanese and Koreans are often to be met with there it is probable that investigations have been made by the latter. About 150 *li* due north of this locality is the famous Tien Pao Shan Silver Mine, which is owned by the Government and said to be very rich in silver. It is a somewhat surprising fact that the Japanese did not ask to have this locality for mining operations, and it is asserted in certain quarters that the reason for their not asking for this district is that they already hold an interest in this mine, which they acquired through a Chinese official. At the present moment I have no means of verifying this statement, but of course if such is the case the opening-up of coal and iron mines in the Sha Sung Kay locality (which is so adjacent) is very necessary in order to be able to smelt and extract the silver from the silver ore at the mine itself.

"If the opening up of these mining districts by the Japanese is carried out in an intelligent manner and on a large scale, a considerable benefit will be done to China and the laying of a foundation of a mining industry should give both direct and indirect employment to many. On the other hand, if the Japanese only play at mining, using it as a screen to get a foothold on the soil, the harm done to China will be incalculable. In these circumstances all mining development work that is started by the Japanese must be closely watched and reported on to the Central Government."

Rewarding Mining Men.

It is so against the ancient custom in China for officials to recognise the mere mining man or manufacturer of necessities that any evidence of a marked change of policy is worthy of record. In August the Governor of Heilungkiang petitioned the President to reward mining men named Chi Hsueh-po and Chao An-chen, and as a result they have been given the 7th and 9th classes respectively of the Chia-ho Decoration.

The petition of the Governor is as follows:

In asking for suitable rewards for merchants who have achieved marked success in mining operations, I hereby respectfully submit that of all the rich latent resources of the Heilungkiang province the treasure of gold ore on the border is of specially great value. Since these buried treasures need to be urgently dug out, those merchants, on whom we have to rely for capital to work these mines for the benefit of the country, especially those who have made prominent success, should be singled out and rewarded as a means to encourage others.

Now Chi Hsueh-po, a merchant who organised a gold mining company in the 3rd year of Hsuan Tung, by the name of Yu Ching Kou Gold Mine, has worked the said mine with all his energy and resources all these years; and since the company was made into a semi-official enterprise, he, in the capacity of Director, has shown unusual devotion and energy, resulting in the growing prosperity of the enterprise. Another man rarely found among mining merchants is Chan An-chen, the resident manager of the works, who has managed the works in a most orderly and efficient way. These two men have worked ever since the establishment of the company, and in a short space of four years they have added no less than five hundred or more thousand roubles. If further improvement is made they will certainly benefit both our mining affairs and finance materially. The enthusiasm of the said Chi Hsueh-po over mining affairs is further borne out by the fact that he has now created another mining company called Yu Yuan Gold Mining Company as well as assisting the Chun Yuan Company at Kochang in the prospecting of gold ores. Such enthusiasm is indeed worthy of our admiration. It has been the custom of the Ching-lan (the Governor himself) to recommend for reward those who have achieved success in mining operations. Now these merchants who have put in a large capital for the purpose of opening the sources of money, are in a way more worthy of reward than officials of the same merit. Will it please Your Excellency, therefore, to confer the 7th Class Chia-ho Decoration on Che Hsueh-po and 9th Class Chia-ho Decoration on Chao An-chen as an appreciation of their merits, in accordance with regulations; or it may please Your Excellency to reward them with tablets instead. We respectfully wait for your great decision, etc.

The President's reply: Chi Hsueh-po and Chao An-chen are hereby given the decorations as requested. The Ministry of Agriculture and Commerce is hereby ordered to take due notice, and the State Department is to notify the Bureau of Civil Appointment to the same effect.

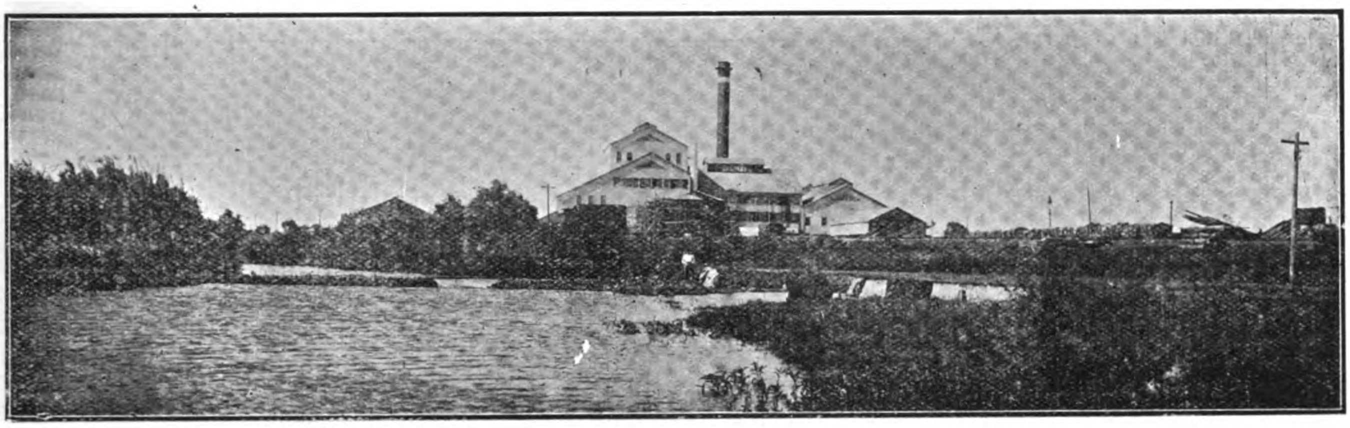
Mining in China.

FACTORS FOR AND AGAINST SUCCESS.

The prospects of mining operations in China and the possibility of their proving profitable to the investor are discussed in the *Mining Magazine*, which asks four questions, namely; Is there adequate evidence of the existence of mineral deposits of sufficient value to offer a substantial hope of exploitation? Do labour conditions and other local factors influencing the cost of operation indicate that mines can be operated at a sufficiently low cost? Is there, in the case of the base metals and minor minerals, a reasonable expectation of adequate and growing markets that are safe from capture by imported products? Are the laws and regulations governing the mining industry such that mining operators can expect to conduct their enterprises under satisfactory and stable conditions? Proceeding to discuss these factors the journal says:—

That mineral deposits of sufficient richness to justify exploitation exist in China there is no doubt. In a paper on the Mineral Production and Resources of China (published in the FAR EASTERN REVIEW for July, 1912,) Mr. Thomas T. Read has summarized the then existing knowledge of the mineral deposits of China, and as an engineer qualified by some years' residence in the country, his views are of special value. He showed that coal is so widely distributed throughout China as to be almost everywhere available with comparatively little transport, and that its quality is generally good and in many cases excellent. One large mine of iron ore of good quality has been developed, and there is evidence that other deposits of similar ore exist, with a presumption that there are many such. Considerable amounts of copper have been produced by native methods in south-western China, though hampered by lack of transport facilities and a locally scanty fuel supply. The same remark applies to zinc, except that the deposits appear to be of even greater value. Gold deposits are found chiefly along the northern and western borders in districts now difficult of access. These also offer much hope of profit under more favourable conditions, which may reasonably be expected to be eventually attained. Altogether it is evident that China is a mining region of great promise.

The present laws and mining regulations of China are not conducive to the investment of foreign capital in mineral deposits. Generally speaking, foreign firms can only engage in business in certain restricted areas, known as treaty ports, within which they are under the jurisdiction of their own Consuls, not being subject to Chinese laws or paying any taxes to China other than import duties, which are low. The treaties concluded at the end of the anti-foreign outbreak in 1900 provided that China should revise its mining regulations in such a way that foreign capital should be free to invest in Chinese mining enterprises. In the years that have since passed several codes of mining regulations have been promulgated, the latest having appeared about a year ago. None of these codes showed evidence of having been prepared by persons gifted with an understanding of the mining industry of China or of any other country, and the restrictions imposed by them made mining investments unattractive to both Chinese and foreigners.



SHAROKEN MILL OF THE TAIWAN SUGAR COMPANY

COMMERCE AND INDUSTRY OF FORMOSA

[BY CONSUL EDWIN L. NEVILLE, TANSUI]

The commerce of Taiwan (Formosa) will probably never be very extensive. The habitable land is confined to relatively narrow strips on each side of the island and a few river valleys. These areas, while fertile, are limited and are too small to support a large population. There are hardly any industries, and the mineral resources are confined to a few gold mines and some coal and oil deposits, none of which have as yet proved of great value. Silver and copper have been found in small quantities.

Population of the Island

The population of the island is estimated at 3,500,000. Of this number about 12 or 13 per cent live in towns of more than 5,000 inhabitants. These numbered 22 in 1912.

The central part of Taiwan, a mountainous district, most of which is not arable, is inhabited by aboriginal tribes, many of them entirely uncivilized. They number between 120,000 and 125,000.

Most of the imports are manufactured goods of one sort or another, or special articles of diet which appeal to the palates of the local inhabitants. The imports of manufactured goods consist of cloth, building materials, including iron manufactures and lumber, and chemicals and fertilizers of all kinds.

These imports are paid for principally by the export of rice, sugar, tea, and camphor. Sugar is a subsidized industry, the creation, so far as its present status is concerned, of the past few years. Camphor is a Government monopoly, instituted to prevent indiscriminate destruction of the camphor forests by private dealers. Most, in fact practically all, of the rice and sugar are sent to Japan. The United States is the largest consumer of Formosa tea and camphor, which are about the only articles exported to the United States.

Total Value of Trade of the Island

The total value of the trade of Taiwan for 1914 was $55,583,531, a decrease of $1,304,046 from the amount for 1913. This decrease has been constant since 1912, when the exports and imports reached some $62,000,000. The decline, so far as the year 1914 is concerned, appears exclusively in the total of imports, which amounted to $26,340,757 during 1914, against $30,305,148 during 1913. This diminution of imports is attributed to two conditions —curtailment of governmental activities here and an inability or disinclination on the part of investors to put more capital into enterprises.

Taiwan, from an industrial standpoint, is not at all developed. A large proportion of the imports in the past represented expenditures for public works or improvements and capital in the shape of machinery of various sorts for the development of local resources. A curtailment in the outlays of the local government will consequently show immediately in the dropping off of imports. This is a result of the absence of industrial plants of any kind.

Value of Exports Raised by Increased Sugar Price

Exports from Taiwan for 1914 show a gain of $2,660,345, from $26,582,429 in 1913 to $29,242,774 in 1914. By far the greatest part of this is due to increases in the value of the sugar exported.

Of the total trade of the island in 1914, $42,637,398 represents commerce with Japan, but much of it is in reality indirect trade with foreign countries. Kobe and other Japanese ports offer special transhipping facilities for Taiwan. Merchandise is frequently shipped to Japan, sold there, and then exported. There is free trade between Japan and Formosa; Japan offers a wider market than this island, and there are excellent means of communication. A considerable portion of the import trade of Taiwan pays duty in Japan and appears as Japanese imports.

Shipping companies prefer in dealing with Formosa to transship at Kobe, as the Osaka Shosen Kaisha and Nippon Yusen Kaisha operate regular triweekly steamers between Japan and Keelung. Despite the extra distance, it is actually cheaper, in shipping from London or New York via Suez, to transship at Kobe instead of at Hongkong.

Formosan trade with Japan, which constitutes about two-thirds of the island's total,

KOHEKIRO MILL OF THE TAIWAN SEITO COMPANY

increased from $41,466,426 in 1913 to $42,637,398 in 1914, showing a net gain of $1,170,972. This is due to a gain in the value of the exports to these Japanese ports from $20,137,093 in 1913 to $22,777,582 in 1914. Imports from Japan showed an equally decided decrease, falling from $21,329,333 in 1913 to $19,859,816 in 1914.

The increase in exports to Japan was a result of the greater demand for raw sugar. The exports of this commodity rose from 136,618,136 pounds, valued at $9,708,581, in 1913 to 302,376,893 pounds, valued at $13,781,187, in 1914. This gain was offset to some extent by a decline in the export of rice to Japan, which fell from a value of $7,823,961 in 1913 to $3,446,661 in 1914.

There was a large increase in the quantity and value of the oolong tea shipped to Japan—412,067 pounds in 1913, with a value of $56,040, against 1,565,526 pounds in 1914, valued at $191,839. This total includes a large amount of tea later shipped from Japan to foreign countries.

Formosan bananas likewise seem to have found favor in Japan, as 19,449,117 pounds of them, worth $292,334, were shipped there in 1914, a gain of nearly 8,000,000 pounds in quantity and over $100,000 in value. Crude camphor shipments to Japan in 1913 were 602,120 pounds, valued at $180,376, and in 1914, 2,496,310 pounds, valued at $751,594. Japan now ranks next to the United States in receipts of camphor from Taiwan. It is quite probable, however, that some of this camphor figures among Japanese exports.

The decrease of imports from Japan seems to have been general in character and not confined to particular items. The year has been a dull one commercially.

More Kerosene Oil Received from Japan.

One item of import from Japan showed a marked increase—kerosene oil. This amounted to 786,398 gallons, valued at $134,154, in 1913, and had risen to 2,119,340 gallons, valued at $310,133, in 1914. Japan now supplies nearly as much oil to this market as the United States and the Dutch Indies combined. Some of it is of fairly good quality, but the larger part is of low grade. Some of this oil is re-exported and some of it is used by local dealers to dilute and adulterate the higher grades of American and Dutch Indies oil.

Increased Trade with China.

Trade with China showed a gain both in imports and exports during 1914. The population of the island is almost completely Chinese in origin, and the commerce with China ranks next to that with Japan. It is special in character, being largely confined to articles of use to Chinese.

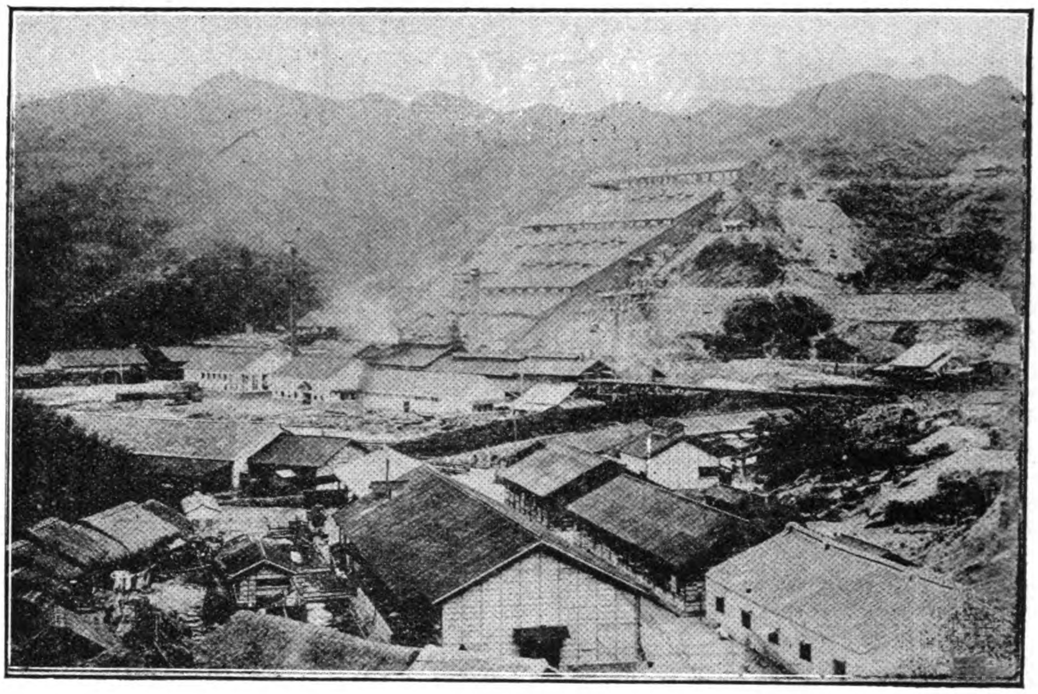
Most of it consists, on the import side, of Chinese paper, grass cloth, Chinese tobacco, imported by the monopoly bureau, bean-oil cakes, and Chinese drugs, fireworks, and the like. Exports to China are made up principally of China grass fiber, fish, matches (a re-export), pouchong tea, and kerosene oil.

The exportation of oil is a new development. In 1913 only 50 gallons were exported. In 1914 there were 1,003,649 gallons, valued at $124,350, sent to China. This oil is largely low grade.

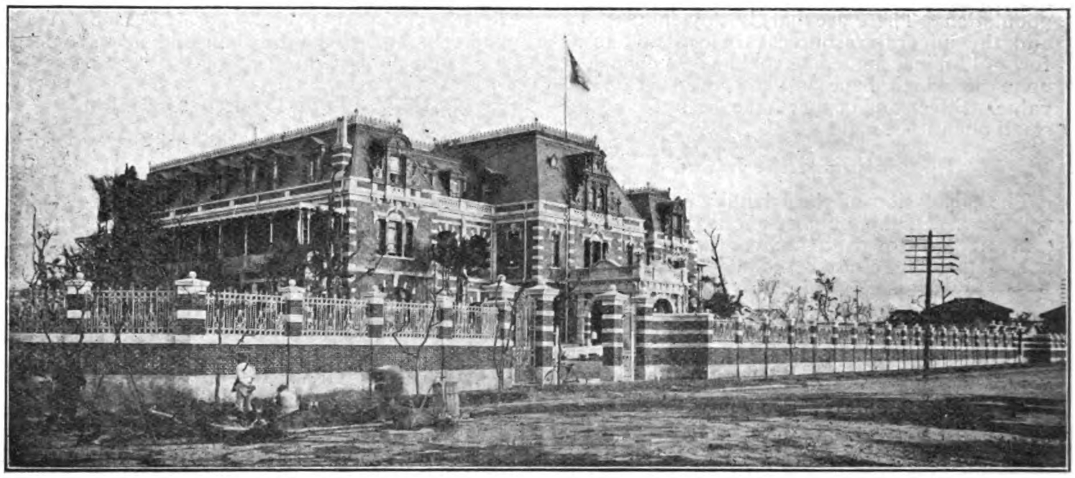
The total value of the trade with China was $5,372,042 (imports, $3,638,830; exports, $1,733,212) in 1914, compared with a total of $5,064,405 (imports, $3,610,870; exports, $1,453,535) in 1913.

Trade with United Kingdom and Germany.

Trade with the United Kingdom showed a decrease of $225,866 in imports and $216,843 in exports, the total decreasing from $1,398,782 (imports, $862,323; exports, $536,459) in 1913 to $956,073 in 1914. The decrease in imports was general in character. The decline in exports was due to lessened purchases of camphor and tea.

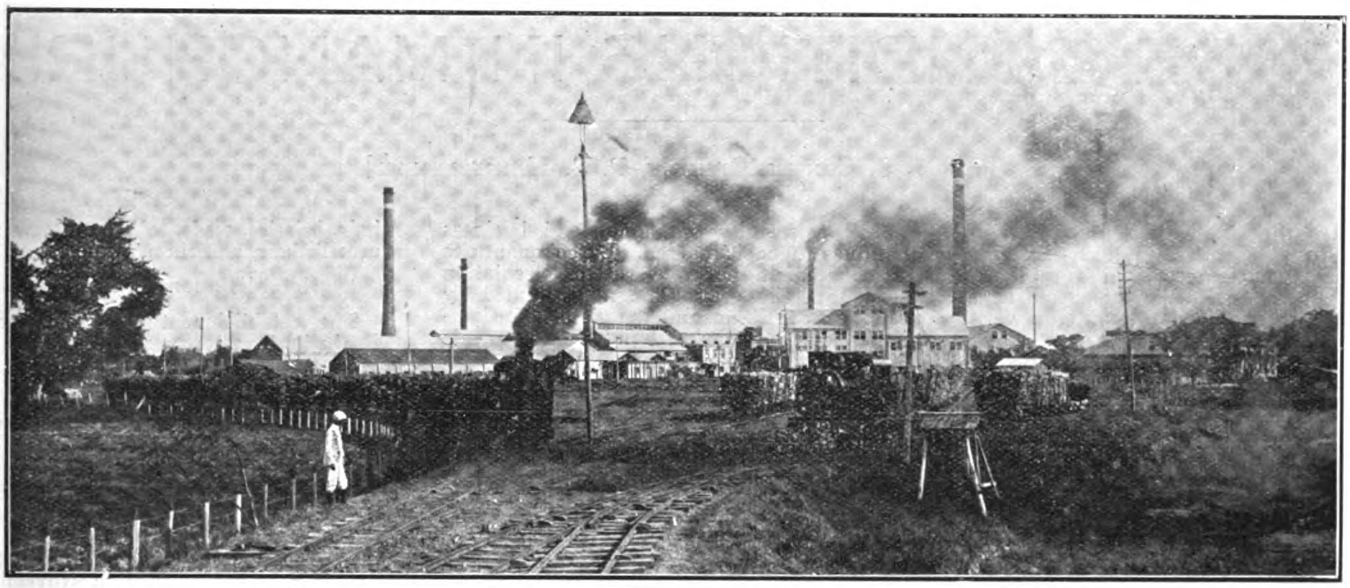


THE ZUIHO GOLD MINE IN FORMOSA



DAIHOKU STATION ON THE IMPERIAL TAIWAN RAILWAYS

RURUN STATION ON THE IMPERIAL TAIWAN RAILWAY



KYOSHITO MILL OF THE TAIWAN SUGAR COMPANY

Despite the war, imports from Germany show only a small falling off from the figures of 1913 ($264,112 in 1913, against $260,499 in 1914), while exports to that country show an actual gain ($371,074 in 1913 and $460,140 in 1914). Imports from Germany, like those from other European countries, are of a general nature and have never been very large. The exports to Germany consist almost completely of crude camphor.

Decreased Camphor Shipments to United States.

Exports to the United States, as shown by invoices certified at this consulate, amounted to $3,361,894 in value in 1914, as against $3,420,140 in 1913, representing a decrease of $58,246, due to a decline in the value of the exports of crude camphor. The export of this commodity to the United States fell from 3,616,935 pounds in 1913, valued at $1,168,340, to 3,496,969 pounds in 1914, valued at $1,048,418. The price of crude camphor has decreased from 78 yen ($38.84) per picul (133⅓ pounds) in 1910 to 72 yen ($35.86) per picul in 1914. This decline in price, as well as some of the decline in quantity and value of the article shipped to the United States, is said to be due to some extent to the development of synthetic-camphor manufacture in the United States.

The only other important article of export to the United States was oolong tea, which showed an increase both in quantity and value. The declared exports of this article in 1913 were 14,920,330 pounds, valued at $2,249,313, and in 1914, 15,398,066 pounds, valued at $2,312,401.

There was one shipment of Formosa hats valued at $241. It seems unlikely that this trade will ever amount to much. At one time there seemed to be a possibility that the Formosa hat would be a competitor of the Panama variety, but it has never been possible to secure any uniformity of grade. Shipments of this article have never resembled the samples.

Decreased Imports from United States.

Imports from the United States were $629,796 in 1913 and $398,646 in 1914.

The decrease in imports appears chiefly in kerosene oil, flour, condensed milk, and materials for railway construction. The decrease in the last-mentioned item is explained by the fact that no new railway construction of importance was undertaken here during 1914; the only activity in this line was the opening of a small private road between the towns of Nanto and Shoka, a distance of about 25 miles, in the west central portion of the island, which took place early in the summer.

Condensed milk imports are given as $139,912 in value, of which $66,492 worth are credited to the United States. The imports of this article in 1913 were valued at $166,560. Of this amount the United States was credited with $90,454. Condensed milk imports from Japan amounted to $73,389 in 1914 and to $76,088 in 1913. Imports of flour fell from $836,808 in 1913 to $664,457 in 1914. Practically all of this amount appears as a Japanese import.

While it is probable that most of the flour and much of the condensed milk imported from Japan are transhipped American goods, it is none the less true that both these comestibles are manufactured to some extent in Japan, too. Japanese condensed milk retails here for 26 and 28 sen (about 13 or 14 cents), while the imported article can not, in view of the duty (yen 5.55, $2.76, per picul, 133⅓ pounds), be retailed for less than 30 sen (about 15 cents) per tin.

Flour prices can not well be quoted at this time of varying values. The import duty on wheat is 77 sen (38 cents) per picul and on wheat flour yen 1.85 (92 cents) per picul.

Send Only Tea to Philippines

The only article of export to the Philippines was tea. Oolong tea to the extent of 7,861 pounds, valued at $1,263, and 193,589 pounds of pouchong tea, valued at $23,482, were sent to the islands in 1914. Both these figures represent a slight gain.

Pouchong tea, which is merely ordinary Formosa oolong with jasmine or other flowers mixed in for flavoring purposes, is a favorite beverage among the Chinese. The pouchong tea exported to the Philippine Islands is probably entirely consumed by the Chinese community there.

There were no declared exports to Hawaii or to Porto Rico.

Trade with Other Countries

Trade with the Dutch Indies is almost altogether confined to imports of kerosene oil and export of pouchong tea. As was the case with American oil, imports of kerosene from the Dutch Indies showed a considerable falling off (1,778,183 gallons, with a value of $215,892, in 1913, as against 1,301,473 gallons, with a value of $162,745, in 1914). Exports of pouchong tea to that destination, however, increased from 3,286,562 pounds, valued at $528,024, in 1913, to 4,116,698 pounds, valued at $668,115, in 1914.

Imports from Turkey and Persia consist completely—and from British India largely—of opium. The monopoly bureau's imports of this drug decreased from 372,467 pounds, valued at $1,879,338, in 1913, to 224,940 pounds, valued at $920,015, in 1914.

Rice and Sugar Market

Taiwan is dependent for its material prosperity on its agricultural products to a greater extent than in most cases. Contrary to conditions obtaining in many parts of the world, the main food crop, rice, has been so low in price that the farming population's income has been seriously affected. Increased prices for sugar and greatly increased sales of that commodity relieved matters somewhat.

Mount Ari Timber Project—Crude Petroleum

The Mount Ari timber project, the subject of frequent previous reports, has not yet proved a commercial success. The railway built to transport the logs from the mountains has entailed such large upkeep and repair expenses that it has been found difficult to market the finished lumber profitably at current prices.

The output of crude petroleum in 1914 is given as 641,763 gallons. It is all obtained from the vicinity of Byoritsu, where a refinery is situated. It is a low-grade oil.

The export of gold coins and bullion, practically all of the latter being from the mines of Taiwan, increased from $431,107 to $742,392.

The number of vessels that entered this port in 1914 was 393 and the total tonnage was 679,260, compared with 438 vessels, 792,724 tons, in 1913. There were 5 American vessels, 40,651 tons, compared with 8 vessels in 1913, carrying 65,280 tons. The number of British vessels was 20, with 63,602 tons, and the number of Japanese 358, with 558,847 tons.

MANILA HEMP CROP

That the Philippine Islands will produce approximately 40,000 more bales of hemp (abaca) this year than they did in 1914, when 967,000 bales were produced, is the estimate of Fiber Export Saleeby. Production estimates show a total of 1,030,000 bales, divided as follows: Albay, 230,000; Leyte, 260,000; Sorsogon, 135,000; Camarines, 115,000; Samar and northern Mindanao, 95,000 each; south Mindanao, 40,000; all other Provinces, 60,000. These figures include only new gradings up to December 31. It appears however, that prices are lower than usual, and despite the increased yield the crop will net some $2,500,000 less than it ordinarily would.

TRADE CONDITIONS IN MANCHURIA

[By U. S. Consul General P. S. Heintzleman]

The trade of the Mukden consular district for the year 1914 was unfavorable on account of the rather inferior crops in 1913, the drought in the late spring of 1914, the disastrous floods in September, 1914, the war in Europe and the Far East, the chaotic currency conditions, a severe winter, and the difficult and complex political situation.

The first half of the year throughout Manchuria was dry; consequently in the southern districts the wheat crop was a failure. In the north, with its later harvest, the crop was not so bad. The yields of millet and beans were fully up to the average, although the quality of both was inferior. This was especially the case with large millet, which did not ripen properly and was less sweet and not so nourishing. Thus the distilleries, which abound in Manchuria, were affected, as the samshu was less in alcoholic spirit. Maize was largely a failure. It did not ripen properly and a considerable quantity rotted in the fields. The tobacco and hemp crops were fairly abundant, though the former was not well dried.

Cultivation of Indigo

Indigo has largely gone out of cultivation as a result of the import of vast quantities of aniline dyes. The difficulty with the native indigo is that it is prepared in a paste and must be transported without being touched by the frost. It is almost always late autumn before it is strained off from the vats, and then it is often frosty. If the proposed Japanese railway from Kaiyuan to Hailungcheng were constructed it would tap the chief indigo district and the trade might revive. Dry-land rice was fairly good and cheap and the Chosen (Korean) paddy rice yielded well. The wild-oak silk was a success, though the drought in the spring of 1914 made the tender leaves late and the birds eager to devour the worms. The late yield was good, despite the wet weather. There were no early frosts and no reports of special disease have come in from the silk districts.

Factors Detrimental to Trade

Among the principal factors which operated to the detriment of trade in 1914 were the chaotic conditions of the paper currency, the issue of debased coins, and the scarcity of metallic money. These are believed to have had a more harmful influence upon business than the war. The provincial banks continued to issue indiscriminately unlimited quantities of notes. The specie reserves for these note issues were far from adequate, and there was a run on the banks from spring to the end of the year. The banks cashed daily only a small percentage of the notes presented. An applicant with paper to the value of small coin $10 would receive on any one day only small coin $2 to small coin $3. Foreign merchants, too, applied at the bank for the redemption of a large amount of paper notes. Through the medium of the local authorities an arrangement was made by which the demands of foreign applicants were met comparatively quickly. The police prohibited money changers from carrying on their business on the streets of Mukden as heretofore, the object being that the people instead of selling their notes to the money changers, who would only have arranged to have them presented to the banks, should use them for carrying on business. The board of finance issued an order in May, 1914, that the Bank of Industries should call in and redeem all their notes and cease to issue new ones. The functions of this bank were accordingly transformed to attending solely to the redemption of its notes. While the notes now in circulation have been considerably curtailed, there is still a scarcity of money and business continues to be hampered. Large quantities of counterfeit notes were in circulation throughout the year. The notes issued by the Bank of China and the Bank of Communications were printed in America, while those issued by the Bank of Industries, the Government Bank of the Three Eastern Provinces, and the local branch of the Government Bank of Heilungchiang, were printed in Tientsin and lent themselves to imitation. The counterfeit notes were circulated more in the surrounding districts than in Mukden, where they would be more readily detected.

Principal Foreign Imports

The principal foreign imports into this district during 1914 consisted of cotton piece goods, kerosene, flour, soap, sugar, matches, candles, and arms and ammunition. Of these articles the United States shared only in the following (the figures are approximations, based on the estimates of representative foreign and native firms and on incomplete customs returns, but they may be accepted as fairly accurate; exact statistics will be given in the annual report from this consulate general on the Manchurian trade in general): Sheetings, 125,000 pieces; shirtings 80,000 pieces; drills, 35,000 pieces; jeans, 3,000 pieces; kerosene, 11,000,000 gallons; and flour, 176,000 barrels. The chief competitors in these lines of goods are as follow: Cotton piece goods, Japan, United Kingdom, and Russia; kerosene, Russia and Sumatra; flour, native mills, Soap is furnished by Japan, United Kingdom, and Russia. Japan and Hongkong supply the matches; the United Kingdom the candles; and Germany up to the outbreak of war, the arms and ammunition. Japan now furnishes most of the munitions.

There are limited imports of sewing machines, bicycles, condensed milk, canned goods, tools, agricultural implements, watches and clocks, stoves, and worsted and other woolen goods, in which the United States participates to a small extent and which offer a favorable field for extension. The following goods may also be competed in if prices and terms are satisfactory (the consumption in some of these lines is not large at present, but the field is capable of extension): Leather and leather goods, jewelry, machinery and fittings, boots and shoes, underwear, nails, screws, hardware, railway plant and material, musical instruments, knitting machinery, chemical products, ready-made clothing, enameled ware, ironware, gramaphones and accessories, photographic materials, galvanized iron, roofing and flat sheets, typewriters, mining machinery, and electrical fittings. The chief competitors with the United States in these articles are the countries of northern Europe and Japan.

Market for Agricultural Implements—Articles of Production

As this district is devoted chiefly to agriculture, a fair trade in modern plows, harrows, etc., could be developed here if stocks were kept and the implements demonstrated. Threshing machines worked by animals would be an immense benefit to this land, and should in time, along with the agricultural development of this region, find a market here. The machines should be cheap but strong to suit local conditions.

The following are articles of native production that may be exported, the wholesale export prices of which compare favorably with those of similar goods produced in other countries: Beans, bean oil, bean cake, coal, hides, goat and dog skins, mats, furs, horse hair, bristles, seeds, tobacco, beeswax, cereals, camel's hair, and sheep's wool.

Establishment of Iron Furnaces

The establishment of iron furnaces at Penhsihu by a Japanese concern, the Penhsihu Colliery & Mining Co., may be the beginning of a great industry, as the hills to the northeast of that center are known to contain much and quite a good quality of ore, while coal and lime are abundant and water power may be easily developed. The pig iron produced by the company is found to compare well with the British product, and the management is confident of its ability to improve the quality. The producing capacity of the furnaces opened in November, 1914, is planned to be 150 tons per day; at present the daily output is limited to about 110 tons. It is expected that in due course the output may be increased to 200 tons per day. The company is perfecting its sales plan abroad. At the rate of 150 tons per day the annual total output will reach about 54,750 tons. About 35,000 tons of this amount will be supplied to the South Manchuria Railway workshops, at Dairen, and to the Kawasaki dockyard, Kobe, Japan. The remainder is to be exported to various points in Japan, the bulk of which will be shipped via Newchwang, where the wharf and harbor improvements made by the South Manchuria Railway in 1914 are expected to facilitate greatly the export of iron and coal. At present import pig iron is quoted in Japan at $20 or $22.50 per ton. The company is prepared to offer its product at $17.50 or $20.

Copper and Gold—Output of Coal

Copper should be the next item to be worked in this region, and also gold from the mother lodes. Coal continues to be produced in the Fushun mines in increasing quantities. The production in 1914 was 2,336,000 tons as against 2,038,000 tons in 1913. This coal goes chiefly to Japan, but the demand for it is increasing throughout eastern Asia. It is competing favorably in Korea with the Japanese coal. The Fushun collieries are a great boon to Manchuria, supplying as they do the railways, the large distilleries, and many hongs with fuel. The coal is sold, however, at prices that, in view of the cost of production, are particularly high. The prices are higher locally than in Tientsin. This is due to there being practically no competition here. The production of the two other principal coal mines in this district in 1913 and 1914 was as follows: Yentai, 76,832 tons in 1913 and 89,637 tons in 1914; Penhsihu, 270,782 tons in 1913 and 315,912 tons in 1914.

The Cotton Goods Industry

The Kuangli Co., of Mukden, was organized in 1911 with a capital of $1,500,000 for the manufacture of sheetings. The machinery consists of 30 looms, and the motive power is furnished by kerosene engines. About 50 operatives are employed and the daily output is 1,200 yards. The same company operates a cotton mill at Liaoyang, which contains a total of 24 looms—16 for sheetings and 8 for nankeens. The production of this mill in 1914 was 6,500 pieces of sheetings and 4,500 pieces of nankeens. A cotton mill at Newchwang operates 20 power looms for nankeens and 36 hand looms for sheetings. Last year this mill turned out 11,000 pieces of nankeens and 10,000 pieces of sheetings. The output from these three small establishments is now too small to have any effect on the market, but it is worth noting as an indication that in time cotton manufacturing in Manchuria may become an industry of some importance.

Other Industries

In the latter half of last year a Japanese flour mill, operated by electricity, was established at Liaoyang. Also oil engines were installed in several bean mills, superseding animal and hand power.

The local industry in the manufacture of samshu, the native spirit distilled from corn and kaoliang, was seriously affected by the prohibition of the traffic in alcoholic liquors in Russia and its temporary prohibition within the area of the Chinese Eastern Railway. As much of this product was shipped to Siberia and North Manchuria, the trade practically ceased, and 80 distilleries in this district were closed.

The Sanlin cigarette factory, Mukden, under Japanese management, has a capital of $10,000. Some 50 Chinese hands are employed and the annual output is estimated at $40,000.

The Hoizumi glass factory, under Japanese management, with a capital of $12,500, employs 12 Japanese and 32 Chinese hands. The value of the annual output is given at $17,500.

Tramcar Line—Manual Training Institution

The Mukden Horse Tramcar Co. operates the line between the city and the South Manchuria Railway station. The capital is $95,000, subscribed by Japanese and Chinese in the proportions of 6 to 4, respectively. The yearly profit of the company is about $7,500.

The Government Manual Training Institution was established in 1909 to teach Chinese weaving, carpentering, dyeing, embroidering, manufacturing laquer ware, hardware, carpets, and leather goods. There was $20,000 spent on the building and $13,000 on machinery and materials; $13,000 is appropriated annually for running expenses.

Exports to United States

There are no exports from this district to the United States except small shipments of hides, horsehair, and bristles. The bulk of the exports to the United States from Dairen and Newchwang, however, is produced in this district—beans, from which bean oil for export is expressed, buckwheat, maize, and coal. Mukden is virtually a distributing point for imported goods and a depot for the collection of native produce destined for transshipment to the coast, where the headquarters of the leading foreign firms are still located. The declared exports to the United States from this consular district, including Newchwang, increased from $115,386 in 1913 to $219,278 in 1914.

No Statistics Available Showing the Trade of the District

As import and export duties are paid at the port or frontier station where the goods enter or leave Manchurian Provinces it has not been found necessary to establish a customs house at Mukden. Though a commissioner is stationed here attached to the provincial foreign office for advisory purposes in customs affairs in Manchuria generally, he collects no revenue and records no statistics of trade. Therefore no statistics are available showing the trade of the Mukden district, but an approximate estimate may be made by consulting the customs statistics contained in the reports of the consular districts of Newchwang, Dairen, and Antung—the ports through which passes the import and export trade of this consular district, except the extreme eastern portion, the Hunchun and Chientao districts. The only statistics of Mukden trade available, therefore, are those supplied by the Japanese railway administration, and these do no more than show the principal railway goods coming to and leaving the city. [A table showing the articles and quantities arrived at and forwarded from the South Manchuria railway station, Mukden, during 1913 and 1914 may be examined at the Bureau of Foreign and Domestic Commerce.]

Increased Demand for Cotton Goods

Business in cotton piece goods is steadily increasing, and Mukden will soon supplant Newchwang as the chief distributing center for this class of merchandise. While all the standard chops have added to their sales, Russian printed cottons have forced their way into the market, by reason of their good quality, suitability of design, and moderate price, even holding their own against cheaper Japanese goods of the same class. With the exception of the Mitsui Bussan Kaisha, which is the local agent of the Manchurian Cotton Exporters' Association, and the three agencies of other Japanese firms handling piece goods, this business remains almost wholly in Chinese hands, the direct foreign (non-Japanese) importation forming a small proportion of the whole. While the market for piece goods in this district is growing yearly, yet the trade in American goods continues to show decreases. This trade is now practically in the hands of the Japanese, whereas 10 years ago it was held by Americans. Cheap cottons of a grade little used in the United States are sold in large quantity.

It is suggested that as the American market is reported to be overstocked with cotton the present would be an opportune time for the leading American manufacturers and exporters to combine in sending a representative here to investigate the conditions surrounding this trade with a view to establishing a large American-managed distributing agency in Manchuria. Such a syndicate might well include capitalists who have investments in banking institutions and steamship lines interested in Far Eastern trade. At the same time the American mills should manufacture a line of piece goods especially for this market at prices competing favorably with Japanese lines. The local agency would have to be given strong support and be permitted to grant terms equally as favorable as those extended by any of the competitors in these lines, Japanese or European. Stocks should be carried at the principal distributing centers and the goods should be shipped via Japan and Chosen to Antung or direct to Dairen, instead of to Shanghai, in order that advantage may be taken of the one-third reduction of customs duty at Antung on rail-borne goods and of the reduced through freight rates on the Japanese railways, which were designed to favor both Antung and Dairen. To take such a step now would possibly mean the recapturing of some of the trade lost during the past few years.

[Confidential Bulletin No. 30, Mar. 10, 1915, issued by the Bureau of Foreign and Domestic Commerce, gave important details on the cotton piece-goods trade of Manchuria.]

The Flour Industry and Imports

Great quantities of flour find a ready market in this district. The trade here, as elsewhere, is of a fluctuating nature, prices rising and falling at the shortest notice, according to local and foreign wheatcrop conditions and the rate of silver exchange. Most of the output of the Tiehling flour mills, the Manchurian Flour Manufacturing Co., at Shuang Cheng Po, and the Chinese flour mills at Shuang Chen Tin and at Changchun finds its way to this market and competes with Harbin or American flour. The Chinese have adopted this commodity into their everyday life, so that there are few people who do not eat flour in some form. This, of course, applies only to large towns, for the cost of cartage to outlying villages prevents wheat flour supplanting kaoliang or maize flour.

The importation of American flour into Manchuria during 1914 was 1,000,000 sacks (25,000 tons), or a decrease of 37 per cent as compared with the previous year. Though the latter half of the year was very favorable for the importation of the American product, yet it is understood that owing to the European war the flour trade of the United States was diverted from Manchuria to Europe. There is danger that if the war continues for a considerable length of time native flour from the mills in Manchuria may obtain such a foothold throughout this region as to preclude the reestablishment of the American flour trade.

Imports of American Kerosene—Demand for Watches

Imports of American kerosene into Manchuria totaled 6,600,000 gallons in 1914 as against 15,180,000 gallons in 1913. However, owing to the unfavorable exchange and to partial failure of the cereal crops, which resulted in reducing the purchasing power of the masses, the consumers of oil in many instances found it cheaper to substitute native oils, with the result that the sales of American oil were less in 1914 than 1913 by 2,000,000 gallons.

Mention should be made of the rapidly increasing trade done in the cheaper grade of watches, chiefly of Swiss, French, or American manufacture. Most people who can afford to, carry watches averaging in cost from $1.50 to $5 each. The higher-grade watches also find a good sale. Cheap Japanese wall clocks sell readily.

Bean Crop and Exports

The bean crop in 1914 was an average one, estimated at 1,150,000 tons for this district alone. Owing to the war the demand for beans and bean oil in Europe fell off and the price toward the end of the year dropped almost one-half. The beginning of 1915, however, finds cargoes again moving to Europe and prices about normal. The export of beans to Europe was 150,000 tons and to Japan and South China 80,000 tons each. There was a steady export of bean cake to Japan and south China, 500,000 and 200,000 tons, respectively; and of bean oil to Japan, America, Europe, and south China—15,000 tons to Japan and 10,000 tons each to America, Europe, and south China. Shipments of bean oil for the United States are made up at Dairen or Kobe, the Dairen cargoes often being transshipped at Kobe. Shipments of bean oil from Dairen to the United States increased from 2,962 tons in 1913 to 3,860 tons in 1914.

Extension of American Trade

It is believed that American commercial interests seeking to maintain and promote trade relations in Manchuria would find their prospects of success enhanced by cooperation with Japanese in south Manchuria, especially in noncompeting lines. Broadly speaking, from the commercial point of view, it seems more advisable for American merchants to work in concert with the Japanese than to compete with them in Manchuria. At the same time Chinese officials and merchants are anxious that American business houses establish distinctively American branches or agencies in this and other parts of Manchuria. They invite American capital to be used in developing commercial and industrial enterprises here and urge that direct transportation facilities with the United States be arranged.

In a number of lines American products are becoming better known and consequently gaining ground. The absence of reliable American firms, which fact compels American exporters to look to their natural competitors to sell their goods, is a leading obstacle to the development of American trade in this region. It is believed that the present is an especially favorable time for Americans to make a bid for a share of this market. American manufacturers, or a combination of them, whether exporters of competitive or noncompetitive articles, should establish a selling organization, with its own technical experts and salesmen, offer goods suited to the market, carry stocks at the principal distributing centers, and grant long credits. In some lines it is believed that such a system could be adopted with profit. Such a plan would embrace the methods adopted with beneficial results by such concerns as the Standard Oil Co. of New York and the Singer Sewing Machine Co. (both American); the British-American Tobacco Co. and the Mitsui Bussan Kaisha (Japanese). It will hardly be gainsaid that these concerns, whose

trade in China has grown from small beginnings to enormous proportions, are eminently successful. It now only remains for American manufacturers to profit by their experience, gained after an expenditure of much time, labor, and money, and adopt the same methods in the firm confidence that profitable business will result.

Position of Japan in Manchurian Trade

While there is nothing in the known treaty provisions to prevent Americans from competing on equal terms with any other nation, yet in any comprehensive study of this question there are certain economic and political facts to be considered. Japan holds 70 per cent of the trade of South Manchuria, and in acquiring and still further promoting this trade it possesses the advantages of proximity to Manchuria, the residence therein of a large and increasing number of subjects, control of the leading transportation and banking facilities, and maintenance of its own postal, telegraph, and telephone services. Japan also has a number of large, reliable firms on the ground with extensive facilities for the distribution of goods, and in addition sends to Manchuria men with ability to cope with the peculiar local conditions. The Japanese gold yen, which is current throughout South Manchuria, is destined soon to become the chief circulating medium. With little or no competition the Japanese are unloading in Manchuria the products of their home labor, and favored by Government subsidies, special railway rates, preferential customs treatment, and exemption from internal taxation.

In addition to the special privileges and aids to trade enumerated above the Japanese are penetrating all parts of the country, locating in places not opened to international residence and trade.

It is believed that American goods, under similar conditions, would receive the same treatment on the Japanese railways, at the Chinese customs station at Antung, and, if distributed by our own merchants direct to the consumer, they would doubtless be exempt from inland levies. Moreover, if Americans so desired there is no valid reason why they, like the Japanese, should not trade at places in the interior.

Population of Mukden

According to the Japanese police census the population of Mukden on January 31, 1915, not including the Japanese railway town, amounted to 184,389, consisting of 181,756 Chinese, 2,236 Japanese, Koreans, and 179 foreigners. The Japanese population of the railway area in Mukden is 5,496. The same authority gave the total Japanese population of South Manchuria as follows: Kwantung leased territory, 48,596; South Manchuria Railway area (outside the leased territory), 32,974; under consular jurisdiction, 12,769; making a total of 94,339. Compared with the figures for 1913 and 1914, an increase of about 9,000 and 3,000, respectively, is shown. It is estimated that at the present rate of increase Japan's population in South Manchuria at the end of the present year will total 100,000. These figures, which are believed to be too small (Chinese and foreigners place the present number of Japanese in South Manchuria at 125,000), are exclusive of the military.

Manchuria is credited with 17 per cent of the total foreign trade of China. It is a land possessing many natural advantages, and its agricultural, mining, and industrial possibilities have been fully described.

The Towns of Hunchun and Lungchingtsun.

Hunchun is a small town situated between the Korean and Russian frontiers where these converge near the mouth of the Tumen River. Lungchingtsun is in the adjoining district of Chientao. Custom houses were opened at these places in 1910. Situated in a region which, though favored in respect of climate, is thinly populated and destitute of transport facilities, these towns are not likely to attain commercial importance in the immediate future. Their external relations are with Chosen and with Vladivostok via Novokievsk. The simple requirements of the inhabitants are satisfied chiefly by local productions. The fertile valleys are being gradually settled by numbers of Chinese and Korean farmers, the latter immigrating from northern Chosen. This region is reported to have valuable mineral deposits and large areas of timber, but owing to the difficulties of transportation, exploitation of these latent resources has been suspended. The construction of the projected railway from Kirin to Hoiryong, on the Chosen border, should result in opening up this district to trade from the west and from Chosen.

Imports at Hunchun and Lungchingtsun.

The value of the imports through the Chinese Maritime Customs at the port of Hunchun for the past two years was as follows (the kaiduan (customs) tael having been converted at the rate of 73 cents for 1913 and 70 cents for 1914): Imports of foreign goods, $295,710 for 1913 and $295,833 for 1914; exports of native produce of local origin to foreign countries, $294,695 for 1913 and $165,341 for 1914.

At the port of Lungchingtsun, in the Chientao district, the foreign trade in 1914 was as follows: Imports of foreign goods, $354,778 in 1914 against $489,975 in 1913; exports of native goods of local origin for foreign countries, $41,070 in 1914 against $127,250 in 1913.

Opportunities in China

By H. T. Liang. An address before the Commercial Club of San Francisco.

It seems almost a paradox to say that China is at once poor and rich. Nevertheless, it is true. China is poor, very poor, so far as hard cash is concerned, but it is rich, perhaps one of the richest countries in the world, when we begin to realize its unlimited natural resources. The natural resources of China in number and in kind will speak volumes. However, I wish to speak not so much on the general question of mining in China as on mining in Hunan, which is one of the provinces of central China.

Hunan is dotted with mines of every description: gold, silver, lead, zinc, antimony, tin, copper, iron, quicksilver, and coal. The numerous streams and canals throughout the province offer good transportation facilities. My own family was among the first to take an active interest in mining, for it has been in the business in Hunan for over twenty years.

I long had in my mind the ambition of becoming a mining engineer, and so in 1904, I came to this country for the necessary training. In the meantime, the mining of antimony at home began to assume great proportions, so that technical assistance was very much needed. In 1906, I went to the Royal School of Mines in London, and specialized in mining. Afterward, I studied under Herrenschmidt in Paris, and gained much knowledge and experience from him. The right of operating his patented smelting process in China was purchased for 100,000 francs. In 1908, upon my return to China, I at once organized an antimony mining and smelting company in Changsha, and the business has since been attended with much success. Almost all of our antimony products are imported into your great country through the office of the Wah Chang Mining Co. in New York City.

In addition, we have been operating a few lead and tin mines in Hunan, the ores of which are excellent and are easily transported to market. Nevertheless, as we are still in the experimental stage, we have not worked on a large scale. Consequently, our progress seems slow. But we have not been idle. Plans for rapid expansion have been made, and the prospect of great success seems assured. As soon as conditions in our country are a little more settled, we shall secure larger investments and more men of technical knowledge and experience for the much desired expansion.

The richness of our mines cannot be gainsaid. Let me illustrate by describing to you the Hunan Government lead mine at Shui Kou Shan, of which I have been in charge for about a year. Modern methods and machinery are used only for ore-dressing and in transporting the ores. Old Chinese methods are still being employed in breaking the rocks and in driving the drifts. Despite this fact, the mine yields high-grade lead ore amounting to about 60,000 tons per year. When we have installed up-to-date mining machinery, in a year or two, the output each year will, doubtless, increase several times. The width of the veins is over twenty metres. Foreign mining experts that have visited the place have one and all remarked that they have not seen veins of similar width at any other place in the world. This represents just one mine in Hunan, and there are many more and richer mines in the province. I hope some of you may visit Hunan in the course of time, and I shall be glad to show you what we have in the way of natural resources.

Our commission is now touring through your great country to see the notable advance which you have achieved in industry and in commerce, to seek your advice and co-operation in more than one way, and also to learn your system, methods, and spirit in transacting business. While doing this I wish especially to investigate up-to-date mining machinery, some of which I hope to ship back to Hunan to improve and develop our mining enterprises. Further, I wish to have the privilege of conference with your leading mining men about the best mining technology, with a view to securing their best co-operation and assistance. I sincerely hope I shall have both opportunities and facilities of realizing these hopes.

The development of mining enterprise in America has been really phenomenal. It is true that your great country is rich in natural resources and you have a sufficient number of well-qualified men. But, in the early days there was one act from which your country reaped not a little benefit in developing your natural resources. That was your open invitation to capital and technical men from Europe, and they responded by coming to your country. China fully realizes the advantage of such a policy and has decided to follow your illustrious example. Already there are unmistakable indications that ere long foreign capital and foreign experts will be invited to help us in unearthing the natural resources that have been buried underground for so long.

I have made extensive trips especially through the provinces of Hunan and Yunnan and have found a number of mines which, if operated, will perhaps equal any rich mine in America. At the same time, I fully realize that without the co-operation of capitalists and mining experts from abroad, we can hardly hope to make such progress in mining as is desired and desirable. One of my great hopes in visiting America this time is to call your attention to the wonderful opportunities of mining in China to-day, and to urge that you do not allow them to slip. America sent invitations to financiers and mining experts in Europe and she has since profited by their response. To-day China sends similar invitations to financiers and mining experts in your great country, and hopes that you will respond by coming to share with us our natural resources. Such a response will be heartily welcome, and will prove, I am sure, not only a source of great financial gain to you and to us, but also an added factor to strengthen the cordial relationship already existing between the two countries.

HISTORIES OF PRINTING AND PAPER IN CHINA AND JAPAN

BY HENRY LEWIS BULLEN

All civilizations prior to Gutenberg's invention were restricted in area and influence, and unstable. Many were lost; some survived in a condition of arrested development. "The glory that was Greece and the grandeur that was Rome" were eclipsed in the superstition of the Dark Ages. Then Printing came to revive all that was lost and to establish step by step *one* civilization for all mankind in which there is no seed of decadence and no possibility of extinction. Had printing been invented in the time of Julius Cæsar there would have been no Dark Ages and the world would have been twenty centuries in advance of its present degree of civilization; but until the twelfth century of the Christian era any kind of printing was impracticable in Europe because of the absence of paper. Without paper there could be no printing. Our modern civilization is absolutely dependent on paper or an equally inexpensive substitute. The Greco-Roman civilization was dependent on papyrus. Without papyrus Aristotle, Plato, Euclid and all the civilizers of the great Pagan world would have remained mute and the world untaught. Without paper (in the absence of papyrus) Copernicus, Galileo, Newton, Columbus, Shakespeare and Gutenberg would have lived in obscurity and departed into oblivion.

The art of printing is as old as civilization. It began thousands of centuries ago with the inventor of writing, who was the first civilizer. Its history since the first inscription was made is nothing more than a succession of devices to minimize time and expense in duplicating inscriptions. Each forward step was adopted because it was labor-saving. At every stage the same initial problem confronted the inventors: where to get an inexpensive substance to inscribe or print upon. That remains with us a problem; where are we to get substances to make low-cost papers to meet the tremendously increasing demand? At one time the predecessors of the twentieth-century printer could find nothing better to inscribe upon than stones; then skins, leaves of trees, clay and vellum. When the use of papyrus began, civilization took a tremendous leap forward; when papyrus was denied to Europe and its cultivation neglected in Africa, civilization retrograded rapidly. The march of mankind backward to barbarism was arrested by the invention of an artificial substitute for the papyrus plant, and so similar that it was immediately given the same name in Europe—Paper. Had fate decreed that to one only among all men born of women the secret of papermaking would be imparted, that man's life would have been of more importance to the world than the lives of all the world heroes from Agamemnon to Bismarck. From the period of the cavemen the art we practice has been of first importance in determining the destinies of nations—it is the supreme art when measured by its benefits to mankind.

Reduced facsimile of earliest extant Chinese woodcut, one of several illustrations in the "Saving Grace of the Goddess Kwanyin," printed A.D. 1331; the impression produced by rubbing. The art at that time was evidently far from its infancy.

Paper was invented in China, and the invention of printing by the Chinese was a natural sequence. The Chinese were the first to print from movable types as well as from engraved blocks. Chinese moveable types did not get into general use because they afforded no labor-saving or cost-saving relief in competition with engraved blocks in a language which requires more than fifty thousand characters to complete a font. If China had been blessed with alphabetic instead of word characters, printing in China would have developed on the same lines as it did centuries after in Europe, and China would be in this century in the van of civilization and power. Contemporaneously with Egypt, Greece and Rome, the Chinese developed a civilization which in many important phases was superior. In the period of its progressiveness China excelled the Occidentals in its laws and in inventions and manufactures. It then entered into a long period of mental trance similar to that which Europe endured in the Middle Ages; but the medievalism of China was much more enlightened and humane, because it had printing, which Europe had not. China's medievalism was the result of the limitation of the use of printing. Until quite recent years the Chinese proudly accepted the wisdom of Confucius (B.C. 551-478) as the finality of learning, and consequently its formative literature ceased. To reprint and comment on the works of Confucius was logically the whole duty of scholars and printers: thinkers out of the orthodox circle were deprived of their occupation by the all-wise Confucius. In this respect the results were in the main less disastrous than the same view of the Mahometans concerning the Koran, or of the early monks and the Bible, the Hebrews and the Septuagint, or the Buddhists and the Tripitaka. It is not the sum of wisdom but the liberty to add to it which makes for progress, and of that liberty free printing is the sword and shield.

It is not known when paper was invented. It was in use in China several centuries before the Christian era, and in the far East it is still made in remote interior villages by the same method that was used in the beginning, and probably from the same materials. It is quite probable that it was first made for other purposes than writing, as a substitute for cloth, etc. I recently received from the Shan country, on the borders of China and Burma, an excellent soft, exceedingly strong sample of paper well adapted for printing, although not made for the latter purpose. Mr. F. D. Phinney, superintendent of the Baptist Mission Press, Rangoon, the donor, describes the process thus:

"The bark of a certain wild mulberry tree is gathered, cut into small pieces and boiled for a few hours in an open kettle with lye bleached from wood ashes. The fibers are thus loosened and it is easy to pick over the softened bark, throw aside all knots and bad portions, and then to work and beat out the good fiber on any convenient stone near a running stream. The beaten fiber is then made up into balls, each containing fiber enough to make one sheet of paper about 22 by 28 inches. The mold is a wooden frame, with a cloth bottom, like a sieve. This is let down half its depth into the stream and so half-filled with water. A ball of fiber is put in, stirred about in the water with the hand and allowed to settle on the cloth as the frame is lifted out of the water. When partially dry the sheet of paper is separated from the cloth of the mold, and when dried is ready for sale or use. This paper so prepared has many uses, the covering of umbrellas among them." (Sun umbrellas, I suppose.) The sheet has a deckle edge, of course.

Such, doubtless, was also the primitive method of paper-making in "far Cathay" several centuries before Europe enjoyed the use of paper, improved upon from time to time, until the better papers of China and Japan reached a perfection not excelled in Europe at any period. There is no authentic record of the manufacture of paper in Europe until the twelfth century. It came into use slowly and surviving earlier specimens are crude, that being the reason probably why in the thirteenth century it was in some countries prohibited to use paper for important legal documents. However, the course of events was the same in Europe as in China. Following paper came the block-books and broad-sides, the earliest survivor of which is dated 1423. European block-books, like those of China, were printed on one side, because the paper had to be thin and absorbent to permit an impression by rubbing, but they lack the fine workmanship of contemporaneous Chinese block-books. In the fifteenth century China was more civilized than Europe and more advanced in arts and manufactures, except architecture, and its superiority was due primarily to low-cost paper and printing.

It is not known when printing was invented in China. The earliest reference is in an edict of the sixth century ordering the printing of the classical books from engraved blocks. From China the art went to Corea and from there to Japan, in which country the earliest surviving example is of the middle of the eighth century. The earliest Japanese printed book of which any record exists is dated in 1172. The earlier Chinese and Japanese books now in existence were made in precisely the same manner in which very beautiful books and pictures in colors are produced in those countries in the present day, although block-printing will soon be a lost art there. At all times these block-books were cheap and widely circulated. Before our method of printing was introduced in China, three or four volume works, in cases, octavo size, the whole about one and a half inches thick, were regularly sold for about fifty cents. By the rubbing method of impression a skilled workman averaged two thousand impressions per day. Of an octavo book he would print two pages at one time.

It was in the year A.D. 1041 that Pi-Ching invented a method of printing with movable types. His types were made of porcelain, the height about twelve-point. Chinese word-characters are arranged in columns of single-word characters. Pi-Ching constructed iron bases of the size of the page required; these he covered with a fusible mastic; on the bases he placed a mortised frame consisting of the border-rules and column-rules the same height as his types; he then inserted the types in the mortises, between the column-rules. When all were in position the whole was gently heated and brought to an even height in the mastic by pressure of a wooden planer. When the mastic cooled, the types and border remained firmly glued to the base and the page was ready to print by the rubbing process. The types were released by softening the mastic by heat. This was a practicable method, but it was not used after the death of Pi-Ching because it developed that an expert engraver could average as many pages per day as could be set with individual types. Had Pi-Ching gone a ~~step~~ further and substituted printing by pressure of a platen or cylinder for pressure by rubbing, he would have deprived Gutenberg of his seat in the temple of fame, in which event doubtless he would have substituted some metal for his porcelain. Gutenberg's was a double invention; movable types and a very important new method of getting the impression on the paper or vellum. It is probable that Gutenberg was led to the invention of a press by the impossibility of rubbing the impression on vellum or on thick paper, for in his time there was no thin absorbent paper in Europe. His was also a cost-saving invention, in that he was the first printer who could use both sides of the paper. Pi-Ching's great handicap was the number of characters required in his font. In the Typographic Library and Museum there is a specimen-book of a complete font of Chinese on eighteen-point body, cast in 1840, in Paris, for the Chinese government. It has 42,718 characters. While Pi-Ching was journeying from character No. 1 to character No. 42,718, the wood engraver was able to cut his character, and he saved the make-up and the distribution. The problems of printing a thousand years ago were not dissimilar to those of the present time, and we should remember always that the printer then reasoned in the same way and as clearly as the printer of to-day. They had intelligence equal to ours, but they lacked centuries of experience which guides us.

Motogi Nagahisa, who introduced the European method of printing and typecasting into Japan, establishing printing-plants in several cities. The Japanese derived their knowledge of the Western civilization chiefly from the translation issued from these plants. Motogi stood in this relation to the progress of Japan as Aldus Manutius stood toward the Renaissance in Europe. Both uncovered a hidden treasure with which a new civilization was erected.

There are in existence Corean books of the early fifteenth century, of dates before Gutenberg's invention, which were evidently printed with movable types. There is in the Typographic Library and Museum a copy of "Azumakagami," Vol. VII (one of the "Kamakura Chronicles," Vols. I-LII, A.D. 1180-1266), printed in Japan in the third month, tenth Keicho (March, 1605), which was presented by the Hon. Hatsutaro Koyama, Managing Director, Government Printing Office, who vouches that "this is the very first book printed in Japan from copper and wooden types." These types were engraved, not cast, and this applies also to the Corean types. That "Azumakagami" was printed from movable types is perceptible at a glance. The border rules show the mitered corners. The most-used word-characters would be in copper, the least-used in wood. We know it is impossible to maintain small engraved wooden characters at an equal height, hence an irregularity of impression not found in the block-books. These engraved types, and also the types cast in China in the reign of K'ang-hsi (1662-1723) afforded few if any advantages as long as the impressions were taken by rubbing, and did not hold their place against the engraved blocks. It was impossible to print well by rubbing when the forms were composed of characters of unequal heights. K'ang-hsi used his font to print a complete edition of the Chinese classics, said to run to six thousand volumes. As all Chinese books were stitched through the back and were rarely one inch in thickness this output was possible, especially as one of the works was an encyclopedia of several hundred volumes. In all the accounts of this transaction the types are said to be "cast copper," which K'ang-hsi's grandson is alleged to have melted (about 1740) to furnish metal for copper currency. Nothing is more difficult to cast than copper type, and I venture to believe that either the types were not copper or were not cast. The difficulties of casting in copper and the inferiority of the result warrant disbelief of this much-quoted statement; besides the work was done by Europeans versed in the easier and more effective use of type-metal.

Pictorial block-printing in China and Japan developed into a fine art, especially in the use of colors. The earliest pictorial wood engravings in existence are a Japanese woodcut of 1325 and a Chinese woodcut of 1331, both dated, and both the work of practiced draftsmen and cutters. There is in Shibamata an engraved block crudely done attributed to a priest who lived 1222-1282. The earliest European pictorial wood engraving is of 1423, immature in drawing and cutting. Japanese block engravings are printed in many colors in perfect register, although for such printing the silk or paper is laid by hand to marks on the inked block. To this manual skill there is added the color sense with which the printer applies the color on each block with a brush in gradations of tones. Many masters of this art appeared from time to time and their works are now as much sought after and their value appraised as highly as those of the early masters of engraving in Europe, such as Duerer and Rembrandt.

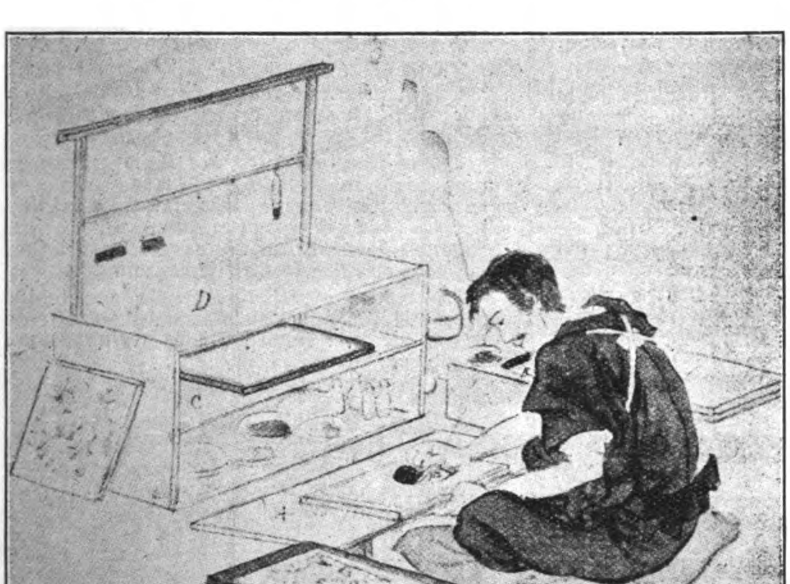
Europe's first knowledge of Chinese and Japanese word characters was derived in the sixteenth century from Jesuit missionaries. The first European book containing Chinese characters is the Jesuit relation "Historia de las Cosas de la China," by Gonzalez de Mendoca, Rome, 1585, and the first to contain Japanese characters is "Rerum a Societata Jesu in oriente gestarum volumen....de Iaponicis rebus ad annum usque, 1565," by Emanuel Acosta, Naples, 1573. Both these works are in the Typographic Library and Museum.

Within the last half century the Chinese and Japanese have successfully adopted Occidental methods of printing. The earliest Occidental printing plant was that of Roman Catholic missionaries in Macao, China, 1590. It did not continue long. China owes the introduction of Occidental printing to the missionary societies of Great Britain and America. The first of these was sent from Boston to Canton by the American Board of Foreign Missions in 1831; the next was that of the American Presbyterian Mission, Shanghai, 1844. At various times mission printing-plants were also operated in Peking, Hongkong, Foochow, Ningpo, Swatow, Hankow, Kiukiang, Taichow, Hainan, and Moukden. In these plants a great number of Chinese learned to print. They also learned English. Some of them established printing-plants of their own, and from them are issued translations of Occidental literature which are eagerly read by the Chinese. Some of these plants are of great size. It is largely due to the work of these Chinese printers, who like the earlier printers of Europe are also editors, translators, and publishers, that China is now rapidly emerging from medievalism into a progressive civilization. The Chinese having seen the light of western civilization in books printed in their own language, are insatiately demanding more light. The greatest missionary is the printer.

Both China and Japan are looking forward to the substitution of alphabetic characters for their hampering ideographs. Japan has already officially decided to use the Roman characters (so far as they go) to express its coming reformed written language. It is to be hoped that China, Corea and Japan will adopt the same alphabet, and in the light of experience and the knowledge of the defects of the Roman alphabet, it may be expected that the Japanese alphabet will excel all others in its phonetic comprehensiveness. This reform will undoubtedly accelerate the progress of the peoples of the Far East.

As is well known, Japan was able to exclude missionaries and all Occidental ideas until the early sixties of the last century. The introduction of Occidental printing was the work of the Japanese themselves. It is contrary to the habit of that nation to be led. How slow the Japanese were in succumbing to Western ideas is indicated by the fact that the ancient kingdom's first newspaper did not appear until 1865. *Naigai Shimpo* (Domestic and Foreign News), printed from engraved wooden blocks, size of each 5½ by 3½ inches. Now Japan has hundreds of newspapers, dailies, weeklies, colored supplements, comics—everything we submit to or enjoy in America.

Occidental printing was introduced into Japan by Motogi Nagahisa. "It was Motogi's belief that until the printer's art in Japan stood on the same level with that of the Occident, our civilization would fall short of that of Europe. How wise and far-sighted he was!" So wrote one of his countrymen who has been influential in the Occidentalization of Japan. Motogi, born 1824, in Nagasaki, came of a knightly family of hereditary official interpreters. He early learned to read Dutch books brought to Japan by Dutch merchants, who alone among Europeans of that time had acquired consent to trade with Japan. He was as much impressed with the printing as with the contents, and by study, not having seen any cast types, he managed to cast Japanese characters in lead, and actually printed a book with them in 1851-2. In 1853 Motogi acted as interpreter to the Russian embassy whose ship was wrecked by a tidal wave. The Russians were therefore obliged to build a schooner for their return voyage, the details of which construction Motogi attentively studied, which led him to observe closely the European vessels then beginning to visit Japan, so that in 1855 he was able to make a working model of a steamship. In the same year he was imprisoned for planning to publish an English-Japanese dictionary. His imprisonment continued three years. When set free he again applied himself to typecasting and printing. His first punches were of buffalo-horn struck in lead; from these he proceeded to steel punches struck into copper matrices; but having no instruction in the niceties of the art, his types were exceedingly inaccurate and the printing even worse, as he had no ink other than Indian ink. Thoroughly disheartened he turned to steamships, buying two small ones, and starting an iron foundry. He thus became the first steam navigator and the first builder of iron bridges in Japan. In 1869 he established a school in which Chinese and other foreign languages were taught. Learning that a mission press was in operation in Shanghai, in which types were cast, Motogi sent a man there to learn typecasting, but the man did not succeed. Motogi then bought types and attempted to use them as models for casting Japanese characters, but again he failed. He then secured the services of an American named Gunberg, with whose aid the first Japanese printing-plant was established and types were cast. In course of time the owners of this enterprise divided into two companies. One company established typefoundries in Tokyo, Nagasaki, and Osaka. The other company started the Kwankoryo printing establishment which is now the Insatsu Kyoku or Imperial Printing Bureau. In the course of time Motogi established printing-plants in several cities. A long time elapsed before they were profitable, and Motogi paid the deficits to the extent of more than half of his fortune. This patriotic man died in 1875, at the age of fifty-two, before which time he had the satisfaction of seeing the printers of Japan well employed by their fellow countrymen, who had been induced by the output of these plants to enter upon a new era of national life. There is a great deal of printing done in Japan in European as well as Oriental languages, and much of it ranks in quality with our good printing.



A Japanese printer and his outfit, with which beautiful books and masterly color-prints have been produced for at least fourteen centuries. Gutenberg's art is in its fifth century.

Reduced reproduction of a Japanese print by the artist Hokusai (1760-1849), the original in four colors, illustrating the printing of a picture in four colors. Two printers are applying the colors with brushes, a woman has the paper ready to lay on the first block, and a boy is mixing colors. Hokusai was a book illustrator, and the example docs not display his full power. The printing would be hurried according to the size of edition and the need of haste. This reproduction is from the original in the Typographic Library and Museum, Jersey City, which also furnishes the other illustrations for this article.

There are not many books relating to the topic of discussion. We must rely on the encyclopedias to a great extent for casual references. Authoritative history is found in Ernest Satow's contributions to the "Transactions" of the Asiatic Society "On the History of Printing in Japan" (1881) and "Further Notes on Movable Types in Korea and Early Japanese Printed Books" (1882), Anderson's "Japanese Wood Engravings," London, 1895, 8vo, pp. 80 (worth about $3), is reliable and interesting, and the process of block-printing is described in minute detail in Tokuno's "Japanese Wood-Cutting and Wood-Cut Printing," Washington, 1894, 8vo, pp. 24 and thirteen plates, worth about $2. "The Mission Press in China," Shanghai, 1895, 12mo, illus., pp. 106 (about $2) and "A Mission Press Sexgenary, a sketch of sixty years of the American Presbyterian Mission Press, 1844-1904," Shanghai, 1904, 12mo, illus., pp. 32 (about $1), are reliable and interesting. Withal this field awaits a more complete history.

There is no comprehensive history of Paper in English. Such a book would be valuable. It is curious that while the subject of paper-marks has been dealt with comprehensively and voluminously the paper has been neglected. The J. W. Butler Paper Company publish "The Story of Paper-Making, an account of paper-making from its earliest known record down to the present time," Chicago, 1901, 12mo, illus., pp. 136 (about $1 50), an excellent short history. Perhaps the best book on the subject in English is "Paper and Paper Making, Ancient and Modern," by Richard Herring, London, third edition, 1863, 8vo, illus., pp 132 (about $2). "The Paper Trade, a descriptive and historical survey of the paper trade from the commencement of the nineteenth century," by A. Dykes Spicer, London, 1907, 8vo, pp. 282, with diagrams, is historical, philosophic, technical and interesting. A curiosity of the literature of paper is "Historical Account of the Substances which have been used to Describe Events and to Convey Ideas from the earliest date to the Invention of Paper," by Matthias Koops, London, 1800, 8vo, pp. 91, which is "printed on the first useful paper manufactured solely from straw," and partly "upon paper made from wood alone, without any intermixture of rags, waste paper, bark-straw or any other vegetable substance" (about $4). Necessity is the mother, etc. In 1800 Napoleon I. had Europe tied up as tight as it is now in 1914. Great Britain could trade nowhere in Europe, and its supply of rags for paper was cut off. Koops, the first to make wood-pulp paper, was induced to experiment to get substitutes for rags; this book is the result. Last but not least, we have the work of that eminent, scholarly printer of Albany, New York, Joel Munsell, "Chronology of the origin and progress of Paper and Paper-Making," Albany, 1876, fifth edition 16mo, pp. 263 (about $3.50), which is indispensable to the student and entertaining to all in the vast army which depends upon paper for its daily bread, as well as to the illimitable army which "doth not live by bread only, but by every word that proceedeth out of the mouth of the Lord."

New Turpentine Factory in India.

A new turpentine factory is to be erected at Jallo near Lahore, in the Punjab, Northwest India. This factory is to take the place of the Punjab Resin Factory at Shahdara, which was badly damaged by a recent flood. While machinery bought some time ago, to be used in the old establishment, is to be used, it would be advisable for American manufacturers of suitable machinery and accessories to address the management of the company. There probably will be an improvement in the turpentine industry of northern India in the near future.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

1000 Mile Track in Korea.—In Seoul, the completion of one thousand miles of railway track in Korea was celebrated recently by a ceremony held in Kyongpok Palace grounds in the presence of Prince Kan-in of Japan. It was attended by some 2,000 guests. According to the "Seoul Press" Dr. Ohya, Director of the Railway Bureau, made an interesting speech on the work of which he is in charge. He said the Seoul-Chemulpo line was the very beginning of the railway system and was first undertaken by Americans but later purchased by Japanese. In September, 1899, the section between Chemulpo and Noyangjin was completed and opened to traffic. During July, 1900, the remaining section from Noyangjin to West Gate Station was finished. In the meantime the Seoul-Fusan Railway Company came into existence, and in August, 1901, the Company started the construction of a railway between Seoul and Fusan from both termini. The property and interests of the Company were purchased by the Government two years later, but the Company continued carrying on the construction work under commission from the Government until it was completed in November, 1904. The total mileage of the line was 267 and it was opened to business in January, 1905.

On the outbreak of the Russo-Japanese War in February, 1904, Japan, under pressure of military necessity, at once started the building of a line between Seoul and New Wiju and the new line together with another military line from Samrangin to Masan was completed. In 1906 all the railways were transferred to the management of the Railway Bureau of the Residency-General. Since then railway building has been continuous and the Pyongyang-Chinnampo Line and iron bridge over the Yalu soon were completed. On the completion of the Antung-Mukden Railway connexion was effected between the railway system in Korea and Manchuria and the trunk railway in Korea became the shortest route from Europe and East Asia, the journey being much facilitated by the new harbour works at Fusan.

Among railway works undertaken since the annexation was the Hanam Line. Begun in October, 1910, and its trunk and branch lines, totalling 175 miles, were finished in January, 1914. No less important a work was the Seoul-Wonsan Line connecting the trunk railway with the eastern coast of the peninsula. It measured 138 miles in length and was finished in August, 1914. With a view to having a railway through South and northHamkyongProvinces, a plan had been laid down for two local lines, one from Wonsan to Yanheung and the other from Chongjin to Hoiryong, and work was commenced last October, with the result that the section from Wonsan to Munchon (a distance of twelve miles) was completed on August 1 last. The total mileage of Korean railways has thus reached 1,006.

Count Terauchi, Governor-General, delivered an address in which he said he was determined to carry on the work just started as rapidly as finances of the Administration would allow, and effect a junction between with the Kirin-Changchun Railway. Engineering work in those regions was very difficult, for the region was hilly and several years would be required before the completion of the railway. The construction of various branch lines had to go on parallel with economical progress of the several localities concerned, and the day of completion of all of them he said would be very remote.

Japan Railway Board Wants Y40,000,000.—The Imperial Railway Board has been framing its own special budget to be introduced in the Diet this fall. A statement made by an official of the department, is that the whole expenditure for the second year of the seven year plan of improvement started last year, will be 40,000,000 yen. Of this amount, 10,500,000 yen will be devoted to construction work, and 29,500,000 yen for repair work. As for revenue, the board estimates that traffic receipts will amount to 121,700,000 yen, and miscellaneous receipts to about 2,500,000 yen, totalling 124,200,000 yen. Expenditures will amount to 106,700,000 yen, the balance of 17,500,000 yen, to constitute a net profit of the board. To this profit will be added 20,000,000 yen from the redemption fund. Then there will be about 2,500,000 yen which can be transferred for the use of the board making in all 40,000,000 yen.

Lines will be built as follows: 25 miles, between Hamada and Masuda; 88 miles, between Miyazaki and Saiki; 34 miles between Yamada and Suzaki; 19 miles between Yamagata and Sazawa; 87 miles between Otoineful and Wakanai.

Tsitsihar-Aigun Railway.—The construction of the long talked-of Tsitsihar-Aigun railway has been decided to be taken in hand early next spring as reported after a consultation of Military Commissioner Chu of Heilungkiang with the Chinese Government.

Shanghai Tramway Receipts.—The following is the traffic return of the Shanghai Tramways (Foreign Settlement) for September, 1915, and for nine months ended 30th September, 1915, with figures for the corresponding periods last year:—

	1915.	1914.
Gross Receipts	$120,421.54	$105,173.36
Loss by currency depreciation.	32,595.04	26,387.08
Effective Receipts ...	$87,462.50	$78,786.28
Percentage of loss by currency depreciation	29.00	26.87
Car Miles run	280,673	261,170
Passengers carried ...	5,452,242	4,671,457
	9 months ended 30th Sept., 1915.	9 months ended 30th Sept., 1914.
Gross Receipts	$980,259.54	$968,756.64
Loss by currency depreciation	263,531.04	229,671.20
Effective Receipts ...	$716,728.50	$739,085.44
Percentage of loss by currency depreciation	28.61	25.16
Car Miles run	2,481,568	2,489,371
Passengers carried ...	43,331,734	41,195,133

S. M. R. Traffic Returns.—The South Manchuria Railway Traffic Returns for the first decade of October give a daily average of Y42,803.63, being a decrease by Y6,314.69 from the corresponding period of last year. This decrease was due mainly to the backwardness of the new produce season. The total receipts from April to October 10th were Y10,471,932 and the net increase over the corresponding period of last year Y1,179,838.

The South Manchuria Railway Co. has received from the Japanese Government permission to double the track on the Suchiatun-Mukden section, a distance of about 10 miles, of the main line extending from Dairen to Chengchun. This work, which is merely an extension, as the line from Dairen to Suchiatun, 2,365 miles, was double-tracked several years ago, will consume over four years. The construction of a railway bridge for the second track over the Hun River is already in progress.

New Indian Railway Project.—The Mayurbhanj Railway Project is an undertaking to acquire the existing Mayurbhanj (Light) Railway and to provide funds for the extension of this line to Talbund. The length of the existing Railway is 32.41 miles of 2 feet 6-inch gauge connecting Rupsa on the Bengal-Nagpur Railway main line with Baripada, the capital of Mayurbhanj State. The length of the proposed extension from Baripada to Talbund is 38.69 miles, to make with the existing Railway a total length of 72 miles on the 2 feet 6-inch gauge.

The proposed extension will run mostly through low forest. An irrigation scheme is nearing completion, and already practically irrigates 10,964 acres. This should be completed during 1915. A further scheme is under contemplation which with the area already irrigated should command above 600 square miles; it is expected that out of this new area 180 square miles will be irrigated.

There are extensive forests beyond Baripada, the present terminus of the line, which have hitherto been practically unexploited owing to the prohibitive cost of carting.

One of the main objects of the extension is to provide an outlet for the large supply of excellent timber for sleepers and building purposes which the Simlipahar forest will supply. These forests are capable of producing 500,000 cubic feet of timber annually.

The extension will also render marketable other forest produce such as myrobalans, etc., which are not exported now, owing to the prohibitive cost of cartage.

Ninguta-Mulin Railway.—The question of laying a railway connecting the walled town of Ninguta with a point on the Chinese Eastern Railway had been pending for some time past. At the end of August the Chinese Guild made an attempt to bring the issue to a head. The question of choosing between the Ninguta-Hailin route and the other one passing through Mulin via Mutan Valley was finally decided in the latter's favour, principally from the consideration of lighter expenses required. The branch of the Frontier Development Bank opened thereat recently is said to have agreed to advance a loan of 100,000 roubles to the Chinese Guild for employment for the railway construction.

Siamese Railway Construction.—The budget estimates for Siam for the fiscal twelvemonth allocate $2,952,600 gold for further work on the extension of the Southern Railway, originally financed out of a loan of about $20,000,000, arranged with the British Federated Malay States. At first the intention was to construct a line running from Petchaburi southward down the east coast of the Siamese portion of the Malay Peninsula,

to connect with a British line on the eastern Patani-Kelantan boundary. Last year, however, the two Governments agreed to make a further connection on the Kedah border—a British Malay State on the west side of the Peninsula.

With reference to the call for tenders by the Siamese Royal Railway Department (broad gauge) for the supply and delivery of bogies and frames for rolling stock, the Acting British Consul-General at Bangkok now reports that the contract in question has been awarded to an American firm.

SHIPPING

New Chinese Shipping Line.—According to a San Francisco Special to the Manila Bulletin under date of October 12, the China Mail, a new steamship company, has been organized with a capital of $10,000,000, to engage in the trans-Pacific passenger and freight carrying trade. The organizers are largely Chinese, though it is said that there is some American capital in the enterprise and it was stated in San Francisco by Dr. Wellington Koo, Minister to Mexico, that Chinese banking interests were solidly behind the new company.

The China Mail has already purchased the former Pacific Mail liner China from the Atlantic Transport Company, and this steamer will leave San Francisco on Saturday, October 16, calling at Honolulu, Nagasaki, Manila, and China ports, as previous to the dissolution of the Pacific Mail. Negotiations have already been begun by the new company for the purchase of other steamers to be placed on the same run, and for the securing of a subsidy from the Chinese government. The avowed purpose of the new line is to take the place of the Pacific Mail on the Pacific Ocean.

The China is a vessel of 10,200 tons, she left Manila in September on her last trip as a Pacific Mail boat, on which line she has been for more than thirty years, making nearly 250 voyages.

China's River Navy.—The Chinese naval authorities have presented a scheme to build 20 or 30 shallow draft warships which will be distributed at important points on the coast and rivers. The President is said to have sanctioned the scheme.

New Tsingtau-Shanghai Service.—The South Manchuria Railway Company has decided to open a regular navigation service between Tsingtau and Shanghai beginning in October. The Hakushin Maru, of 2,000 tons, will be placed in this new service and will run once a week between the two ports.

New Line to U. S.—By the withdrawal of the Pacific Mail liners and the s.s. Minnesota from the trans-Pacific trade what little there was to represent the American Merchant Marine almost completely disappeared, leaving the American flag practically unrepresented, but still further, entirely upset shipping to the Pacific coast of America, as remaining carriers were already booked up in advance. Many shippers were very badly embarrassed. But Shanghai shippers are not to continue to suffer curtailment of business with America because of lack of ships, as a new trans-Pacific service is just being started by Messrs. Norton and Harrison Co. of Manila, whose first steamer, the s.s. Rio Pasig (American flag) loaded here in October for San Francisco and which undoubtedly will be followed by other boats at as frequent intervals as shipping requires and suitable boats can be secured. Mr. L. Everett, local agent for Messrs. Norton and Harrison Co., says that inquiry for space by future sailings indicates clearly that Shanghai shippers are ready to support the new line.

Messrs. Norton and Harrison Co. are a Manila firm of high standing, commercially. One of their lines is the importing of Oregon pine lumber from the Pacific Coast to Manila and it is presumed that the ships will be used for their own return cargoes of lumber.

Magnetic Survey of China Coast.—Dr. Charles K. Edmunds, President of Canton Christian College, a specialist in physics who is assisting the Carnegie Foundation in making a magnetic survey of Eastern Asia, reports that the preliminary survey as undertaken should be completed by next May. When this is done there will be very few points in China more than 150 miles distant from a station where magnetic conditions have been investigated. Dr. Edmunds states that at each point where investigations are made, there are three things to be determined; the angle of variation of the magnetic needle from due North, the dip of the needle from the horizontal, and the intensity of the magnetic force. The result of the survey will make possible a more accurate use of the compass on the sea by those engaged in navigation, and in addition the help afforded to mining, railroad and other engineers on land will be of considerable importance. Dr. Edmunds reports that the Chinese government has been sympathetic toward this scientific work, and particularly the officials of the Maritime Customs Service have not only been sympathetic, but have rendered substantial aid in many ways.

New Java-Frisco Service.—The Java-China-Japan steamship line has planned to open a monthly freight service between Java and San Francisco, through Manila and Hongkong. The main office in Amsterdam has telegraphed to the Chamber of Commerce in San Francisco requesting assistance in securing railway connections. They replied by telegram that details would be arranged after representatives of the company reached San Francisco. It is understood that efforts will be made to induce the line to include Shanghai in its list of ports.

T. K. K. from Dairen to Frisco.—It is now announced that the Toyo Kisen Kaisha will open a freight service between San Francisco and Dairen shortly and all preparations for starting this line are reported to have been completed. For a time only one steamship will be run on this new line, and the company has contracted to charter the Shinsei Maru, 6,200 tons, which will leave Yokohama in December. The Shinsei Maru was sold to Mr. Naruse of Kobe by the Kishimoto Steamship Company for 270,000 yen in March. She was again recently sold to her present owner by the Kishimoto Steamship Company for 570,000 yen.

Panama Reopening Indefinite.—It has been officially announced that owing to continued movements and sliding of material, it is impossible to predict any approximate date for the re-opening of the Panama Canal. The average loading of the 983 laden vessels which passed through the Panama Canal during the fiscal year was 5,055.7 tons, and the average for all vessels, laden in ballast, in that time was 4,567.8 tons, according to an analysis published by the Canal Record. The number of vessels which passed through the canal carrying 10,000 or more tons of cargo was 41. The largest cargo was 12,040 tons, consisting of sugar and general produce, carried by the s.s. Alaskan. Of the 41 vessels, 28 ships, or 68 per cent., were in the service of the American-Hawaiian Steamship Company, operating in the United States coastwise trade.

Japan-New Zealand Line.—For the time being negotiations between Kobe steamship owners and oversea commercial men for a direct line of steamers between Japan and New Zealand, have been going slowly owing to the difficulty of return cargoes from New Zealand to Japan. The present idea is to have three steamers of between 4,000 and 5,000 tons. The chief aim is to get the line started for the coming wool season in New Zealand and to catch the next summer's trade for Japanese goods in New Zealand. Negotiations are being made to charter for the service the s.s. Keizan Maru, 3,159 tons, Daiten Maru, 4,555 tons, and Ataka Maru, 3,758 tons, the two latter being registered at Dairen.

U. S. Shipping Increased.—More ships are now flying the American flag in the foreign trade than at any other time since 1863, and the United States is pressing close upon France and Norway as a maritime nation. For the year ended June 30, there were registered in the foreign trade 2,768 ships, totalling 1,813,775 gross tons, an increase of 363 ships and 737,623 tons for the year. This is about triple the increase in registered tonnage for any previous year in American history, and the registered tonnage is now much greater than at any time since 1863, when 2,026,114 gross tons in foreign trade flew the U. S. flag. The steam tonnage now amounts to 1,273,067 gross tons, while in 1863 it was but 133,215 tons. The increase from the Ship registry Act of August, 1914, to June 18, 1915, was so rapid that tonnage under the American flag now employed in foreign trade is nearly equal to such tonnage under the French or Norwegian flags.

Returns filed with United States Bureau of Navigation, Department of Commerce, show that at the beginning of the current fiscal year, July 1, 1915, the shipyards of the United States had under construction or under contract 65 steel merchant vessels of 296,426 gross tons, the largest amount of work at the corresponding date since July 1, 1907, when 134 steel merchant vessels of 403,473 gross tons were under construction or contract. The steel merchant tonnage now under construction on the seaboard, however, 60 vessels of 288,701 gross tons, is greater than in any previous year, the nearest approach being 63 vessels of 273,865 tons in July, 1901. Of the vessels now building, 21 are bulk oil carriers of 154,056 gross tons, six colliers of 25,475 gross tons, and five passenger steamers of 17,000 tons, the remainder being cargo boats.

FINANCE

China's Salt Tax Surplus.—The Quintuple Group, subject to certain conditions, has handed over to the Chinese Government £550,000, being the balance of money set aside for the reorganization of the Salt Gabelle, which Sir Richard Dane says he does not require for that purpose. The amount actually released was £750,000, but the Banks deducted certain loan charges amounting to £200,000.

Plan New Bank for Manchuria.—Wang Cheng-yao and other merchants have raised a large capital to establish an industrial bank called Fohsin Colonization Bank in the Three Eastern Provinces to develop their natural resources. The object of the Bank is to utilize its capital of $5,000,000 for agriculture, afforestation, irrigation, reclamation, colonization, mining and other industrial enterprises. The Head Office will be in Peking, and branches will be established in various localities on the frontier. The project has been registered in the Ministry of Finance, and the petitioners have been instructed to apply again for formal recognition and registration as soon as one fourth of the proceeds of the fixed capital has been collected from the shareholders.

Sino-Japanese Bank Project.—The proposed capital of the projected Sino-Japanese banking enterprise is dwindling. Two months ago it was set at Y50,000,000 to be subscribed in equal amounts by the two Governments. Later it was reduced to Y20,000,000 but now, according to Tokyo reports, the Japanese government is now showing the plan to those who are interested, with the view to collecting their ideas, so that a bill may be introduced in the coming regular session of the Diet. The contents of the government draft are as follows: Capital shall be 10,000.000 yen. The government shall guarantee the interest of 8 per cent. per annum. The bank shall be conducted jointly by the Japanese and the Chinese. The bank of Formosa and the Yokohama Specie Bank and other banks shall not join in the undertaking. It is understood that the Sino-Japanese bank is to be an independent institution, except that other banks interested may take shares in the proposed bank.

According to reports from Peking, appearing in the Japanese press, the Chinese are not in favor of the proposed Chino-Japanese bank. They say these plans incidentally disclose the Japanese ambition to conquer China economically.

The Chinese government is planning a Chinese colonization of parts of Mongolia, where the Japanese are supposed to be planning a colonization of their own. For this colony China expects to establish a branch of the Colonial Bank in Mongolia. Fifteen officials have been sent to Mongolia to make an inspection in connection with the plan.

Kiangsi Collects Half Million.—The province of Kiangsi has remitted to the Central Government $500,000 realized from the sale of revenue stamps. It is understood that more than twenty magistrates have been awarded decorations on account of their industry in the collection of the stamp tax.

Hawaii Japanese Remittances.—According to official figures the amount of money sent home from Japanese in Hawaii has been decreasing. In 1912, they sent to Japan either through the banks or postal money orders, Yen 5,600,000, in 1913, Yen 5,400,000 and in 1914, Yen 4,600,000. According to the report at the end of last year, the total population of Hawaii was 227,000, of whom 89,715 were Japanese.

Japan's Postal Savings.—During July, 11,303,156 yen in deposits in the government Postal Savings Bank were withdrawn and 15,137,791 yen added in new deposits. The amount of the deposits in the bank at the end of the month was 208,687,574 yen.

Japan's Finance Problems.—The deficit in the revenue for the current fiscal year has already amounted to over 10,000,000 yen, says Minister Taketomi of the Finance Department in a press interview, though the former Minister estimated it at 9,700,000 yen. It is chiefly due to the decrease in the revenue from all taxes, from stamps, and from Government-controlled undertakings. Although the revenue for the current financial year has been unsatisfactory, next year may witness a turn in favour of the national coffer. In spite of the European war, the Customs duties will increase with the improvement of financial conditions in this country. Therefore, the Minister asserts, there is no doubt that next year's revenue will cover the Budget which will be presented to the winter session of the Diet.

As for the naval expansion programme, Admiral Yashiro, ex-Minister of Navy, tendered the estimates for it to the Finance Department. It is not certain, however, whether Admiral Kato, the new Minister, will carry out the plan laid down by his predecessor. Presumably, the annual instalment will be more or less changed. On the other hand the estimated cost of the new works to be undertaken next year by other Departments amount to some 50,000,000 yen, a far larger sum than was anticipated. But, the Minister fears it will be reduced by a large amount in view of straitened resources.

The Imperial Railway Board must redeem next year loans to the amount of 30,000,000 yen in Britain, but the Treasury is too pressed for available funds to carry out the redemption. Therefore, the authorities are inclined to convert them into new bonds. Should the conversion be impossible amidst the war, the Government will issue short-term bonds at home and pay back the loans in Britain. In this connection, however, the public is requested to remember that the Government will never dare to float loans at home only to redeem national bonds abroad. The Commission for the re-adjustment of Government undertakings has made successful investigations of all the Departments and will shortly sit in final conference, when the decision will be given. It is understood that the Paper Manufacture Bureau and the Kyoto Printing Office in the Tobacco Monopoly Bureau have been thoroughly examined by the Commission.

Japan's Revenue Decreases.—According to an investigation of the Department of Finance, the Customs receipts for August amounted to 2,741,794 yen, showing a decrease of 1,770,000 yen on the corresponding month last year. The total receipts from April to August this year show a decrease of 10,490,109 yen.

Japan's Budget Increased.—The National Budget for the next fiscal year was roughly decided upon at a recent Cabinet council as follows:—The aggregate amount of the National Budget for the next fiscal year has been put at Y579,000,000, showing an increase of Y24,000,000 over that curtailed by the Department of Finance.

The principal items of the increased expenditures are Y5,900,000 being the first annual allotment for the naval replenishment appropriation of Y45,000,000 to extend over five years; Y3,250,000 being the first annual allotment for the proposed extension of the telephonic service costing Y16,000,000 to extend over five years; the proposed improvement of seed rice and wheat in quality costing Y85,000; the operation of the Factory Law costing Y98,000, etc. The proposed organization of a naval aerial corps, the proposed encouragement of the manufacture of dyestuffs, and the appropriation for the investigation of military balloons and motor-cars have been retained in modified forms. The proposed extension of the Government Steel Works at Edamitsu and the re-establishment of the sub-district courts have been wholly deleted. The appropriation for the Government operation of the petty insurance business has been included in the Supplementary Budget.

The appropriation of Y5,315,000 for the Imperial Coronation, the increase of the working capital of the Monopoly Bureau by Y3,000,000, the increase of the surplus fund by Y2,000,000, the advance of a loan of Y2,350,000 to the afflicted districts in Kagoshima Prefecture, the replenishment appropriation of Y12,000,000 for the construction of warships and torpedo boats, etc., have been left untouched.

The maximum amount of the issue of Exchequer bills for the next fiscal year has been fixed at Y50,000,000, the same as in the preceding fiscal year. The proposed increase of the reserve fund of the National Treasury from Y3,000,000 to Y8,000,000 has been pigeonholed.

Lower Interest in Yokohama.—Leading bankers in Yokohama held a meeting at the Yokohama Bankers' Club and decided to lower the interests in Yokohama following the example of the banks of Tokyo. The interest rate for fixed deposits for six months was lowered to 4 per cent. The new rates of interest are now in effect except those on special current deposits.

Tokyo Faces Deficit.—Mayor Okuda submitted to the Aldermanic Council on August 17 a plan for readjustment of municipal finances. The following is the outline: The loans raised by the civic electric bureau on account of electric lighting and electric railway business are 99,344,183 yen, the actual receipts being 92,196,101 yen. Of the loan a sum of 88,627,100 yen has been expended in the purchase of the tramway business and properties from the former Tokyo Railway Company, and various extensions leaving a balance of 3,568,999 yen. Writing off the estimated business expenditure including the expenditure required for the business extension postponed from the previous financial year there remains only 510,000 yen. This is the balance which can be expended in the next fiscal year.

The question is, with such a narrow margin of funds how can the municipality begin the annual redemption and payment of the municipal loan and interest amounting to 900,000 yen in principal only, from the next fiscal year.

The proceeds from electric business, both tramway and lighting, are insufficient. The net proceeds between 1910 and 1913 amounted to about 400,000 yen, but as a loss of about 280,000 yen was incurred the next year, there remains only 120,000 yen on hand. The result for the present year is anything but promising.

The only source that can be resorted to is the reserve intended to meet depreciation. This reserve, which stood at 610,000 yen at the end of 1914, is estimated to reach 750,000 yen in 1915 and 950,000 yen in 1916. Owing to lack of money the funds for the first redemption of the municipal debentures falling due next year must be appropriated from this surplus.

Iloilo Utilities to Increase Stock.—Requests for authority to issue additional amounts of stock within the limits already approved have been filed with the board of public utilities commissioners by the Iloilo Electric Company and the Iloilo Telephone and Telegraph Company. The Iloilo Electric Company asks authority for the issuance of P13,800 stock during 1914, and for an amount sufficient to bring the total to P20,000 par value. The receipts are to instal a new engine, switchboard, and pipes in the company's plant to take care of increased patronage. The telephone and Telegraph Company asks authority for the issuance of 500 more shares of its already authorized capital stock, the proceeds from the sale of the stock to be used in extending the system and making necessary improvements.

P. I. Auditor's Big Saving.—That the recent reorganization of the bureau of audits, under the direction of Insular Auditor Clifford H. French, has resulted in the accomplishment of the full work of that office in spite of a reduction affecting 40 per cent of the American and 20 per cent of the Filipino personnel of the bureau, and effected a saving to the insular government of P81,354 per annum, is the statement just made by Mr. French in an official report to the acting governor general. During the period from October 1, 1913, to May 1, 1915, the staff was reduced by 23 American employes and 37 Filipinos. The saving in salaries of Americans alone was P79,800 per annum, while that in those of the natives was only P1,554. This latter fact is accounted for by the promotions accorded a majority of the Filipinos retained in the

service. It is understood that the reorganization of the bureau worked out by Mr. French last year, and as a result of which several of the departments were combined, enabled the required amount of work to be done with a greatly reduced staff.

India's Revenue Nearly Normal—Revenue collections of the Government of India, for the period from July 1 to December 31, 1914, as compared with the corresponding period of 1913, are given in the attached table, together with the principal sources from which such revenue was derived:

Sources of revenue.	1913	1914
Land revenue	$21,870,537	$22,768,893
Opium	2,956,398	3,280,508
Salt	7,451,584	8,714,928
Stamps	11,874,746	11,138,445
Excise	20,597,461	19,998,395
Customs	18,043,522	14,213,587
Assessed taxes ...	4,966,750	5,311,298
Forest	5,119,071	4,743,864
Tributes	671,577	615,126
Other heads	1,358,240	970,866
Interest	2,860,527	1,808,391
Post and telegraph	8,849,243	8,712,494
Receipts by civil department	3,398,764	3,491,226
Miscellaneous ...	1,279,889	1,610,088
Railways (gross)...	85,549,175	79,755,122
Irrigation	5,655,846	5,797,461
Other public works	584,953	561,107
Military receipts ...	3,277,100	5,186,715
Total revenue ...	206,365,383	198,778,514

No new forms of raising revenue have been adopted since July, 1914. The amount of rupee debt outstanding on July 1, 1914, was $472,647,782. The amount outstanding on January 1, 1915, was $488,361,386. The amount of sterling debt outstanding on July 1, 1914, was $861,685,640. The amount outstanding on January 1, 1915, was $893,317,890. In addition, a temporary loan of $38,932,000 from the gold-standard reserve, in aid of the treasury balances, was outstanding on January 1, 1915.

RIVERS, HARBORS AND CONSERVATION

Hongkong Harbor Improvements.—According to a report by U. S. Consul General George E. Anderson the first step looking toward the ultimate improvement of the harbor of Hongkong along modern lines by governmental agency has been taken in the action of the legislative council of Hongkong in appropriating a small sum for dredging a portion of the harbor for a 30-foot approach to and berth alongside of a new wharf to be erected by the Hongkong & Kowloon Wharf & Godown Co. Ltd. which owns and controls the only modern wharf accommodations in Hongkong. About two years ago this company proposed to construct a new wharf for accommodation of vessels up to 650 feet in length and corresponding draft, but found that the approaches to their property would not admit of the berthing of vessels with over 28 feet draft. The matter was taken up with the colonial government at the time and was referred to London. As a result of the negotiations the colonial government has agreed to dredge two berths alongside the proposed wharf to a depth of 30 feet at lowest spring tide and to dredge 231,600 square yards of harbor as approach thereto. The work will be done by a government dredger which formerly was employed in the construction of the large typhoon shelter in the harbor.

The work is of importance chiefly in that it is the first work of the sort undertaken by the Government in this, one of the greatest shipping ports of the world. For several years there has been considerable agitation in British shipping and governmental circles in the Far East as to the necessity of improving portions of the harbor of Hongkong, not only in the way of the construction of modern wharfs and warehouses in addition to those now existing as the property of a private concern, but also in the way of deepening portions of the harbor which have been silted up somewhat and which otherwise can not properly handle the largest ships coming into the harbor.

British shipping interests on the whole have been opposed to improvement at present on the theory that so long as Hongkong could care for vessels up to the maximum draft allowed by the Suez Canal there was no need for improvements which, when really undertaken, would involve immense expenditures and represent a radical departure in Hongkong affairs. The need of additional modern accommodations for ships and modern means of handling freight is being felt, however, and the increasing probability of embarrassment growing out of the use of the Panama Canal by large ships in the Hongkong trade is leading to action.

Hongkong Reclamation Project.—It is announced by the colonial government that the plans for the reclamation of a portion of the harbor along what is known as the "Praya East" by moving several hills into the sea are expected to materialize at no distant date. The inauguration of the enterprise was stopped by the outbreak of the war in Europe.

Macao to Buy Dredger.—Taking into consideration the growing difficulties of access to the inner harbour due to the constant silting up of the roadstead channel and also the urgency of doing necessary dredging, the Governor of the Province of Macao has called for tenders for the supply of one maritime self-propelling dredger, of steel hull, for the use of the Macao Harbour works. The tenders must be sent to Macao in a sealed cover, addressed to the Governor of the Province, President of the Harbour Administration Board, not later than 3 p.m. of the 8th January, 1916, and made out in accordance with conditions on view in the Harbour Master's Office, Macao, in the Portuguese Consulates in Hongkong, Shanghai, Kobe, the United States of America and the Dominion of Canada.

Cotabato P. I. Harbor Improvement.—Because of the growing importance of Cotabato as the port of entry for the great Cotabato Valley the improvement of the harbor facilities at that place is becoming imperative. The bar at the mouth of the river is gradually silting up and vessels drawing eight feet of water are now unable to get over it except at extreme high tide. There are several projects in contemplation and Governor Carpenter has asked Acting Director of Public Works Gordon to make an investigation in person in order to determine the most feasible one. The Department Governor has asked for an appropriation of P50,000 to cover the cost of the necessary surveys and to begin the work.

Dredging at Cebu Nearly Finished.—Dredging for the port of Cebu, to a depth of 30 feet at low tide, was reported to be 90 per cent completed on October 1. The new 250 meter concrete wharf, which was completed by the bureau of navigation, prior to the taking over of port works by the bureau of public works, has accordingly been placed in service for all coastwise vessels. The filling back of the wharf is 75 per cent completed, approximately 16,000 cubic meters of dredged materials having been placed. To avoid erosion and as a protection for the street surfacing, the waterfront is being paved with a macadam asphalt, which is 50 per cent completed. The original appropriation for dredging, backfilling and paving was P70,000. Expenditures to October approximated P46,000 with outstanding obligations amounting to P19,000 leaving an available balance of P5,000. Approximately, P13,000 additional will be required to complete the project as originally planned. When this project is completed, the further improving of wharf facilities by the construction of an extension of the present wharf along the east side of the town, forming approximately a right angle at the end of the present wharf, will be begun. The proposed work will include additional street work, dredging and backfilling. The total improved wharfage front for the port of Cebu is now approximately 3,000 feet.

Hobart Tasmania Rivulet Diversion.—For developing the water front on the Derwent River, north of Ocean Pier, it was found that it would be necessary to change the bed of the Hobart Rivulet, which empties into the Derwent at that place by a tunnel under the Domain, which will carry the waters of the Hobart Rivulet into the Derwent about half a mile above the present mouth. The cost of the work will be about $150,000, which will be paid equally by the State of Tasmania, the city of Hobart, and the Marine Board of Hobart. The largest item of the cost will be for constructing the tunnel which will be about 2,000 feet long, 14 feet wide, and 12 feet high, and will have to be blasted through rock about 80 per cent of its length. The work will be done by contract, and the machinery, explosives, and other necessary materials are being obtained from local dealers.

Australia's New Coaling Wharf.—The first section of the new coal-loading wharf has recently been completed in the Newcastle Harbor, at a cost of $210,000. This wharf is one-third of a mile long and of especially heavy construction on account of the electric traveling cranes which it is to support. A system of heavy diagonal bracing was employed between the superstructure and the high-water mark, with the idea of preventing the traverse rails from getting out of alignment, by heavy vessels coming against the wharf. Reinforced concrete construction was used for the "feeder sidings" to sustain the load of heavy freight engines which will be used in bringing the coal trains from the mines direct to the dock. A depth of water of 30 feet will be maintained along the face line of the wharf, but it is so designed that the depth may later be made 35 feet. The average depth of water on the bar at Newcastle Harbor is now 23½ feet at mean low tide. The dock will carry six 15-ton, coal-loading, high-speed electric traveling cranes, each weighing 200 tons. They were manufactured in England. Two have been delivered and the third is on the way.

New Zealand.—The city of Auckland has just let the contract to Langlands (Ltd.), Gisborne, New Zealand, for constructing an impounding dam at Nihotupu, about 16 miles west of the city, with a storage capacity of 540,000,000 gallons, at a cost of $464,879. The height of the dam is 150 feet, length 530 feet, and the water area 36 acres. The time allowed for completion is 3½ years. This is to supplement the present water supply, that is not equal to the growing demand, owing to rapid growth of the city and suburbs.

MacassarHarborExtension.--Shipping and commercial circles in Macassar have received word from the Harbour Board that the Government has sanctioned the construction of the boat harbour planned some time ago, as well as a northern extension of 380 meters to the 780 meters long sea wharf now in course of completion for sea-going vessels. As a result of the above, 1916 will see Macassar with the old 510 meter pier, the new boat harbor, and a wharf measuring 1,100 meters in length for large vessels. The two latter should, as a matter of fact, be ready for use before the end of this year.

Bangkok's Ferro Concrete Pontoons.—The first ferro-concrete pontoon made by the Bangkok Dock Co. for the Borneo Co., Ltd. has been placed at the wharf of the Company's premises. It appears to be much more stable than the hitherto wooden pontoons.

Yokohama Reclamation Work.—Mr. S. Asano, president of the T. K. K., who has received a permit from the governor of Kanagawa-ken for the reclamation of the Tsurumi beach, in the suburbs of Yokohama, will have the work started soon. The plan is supported by Baron Shibusawa and Mr. Yasuda, president of the Yasuda bank. Mr. Yasuda has contracted to advance 600,000 yen for the new work. After the completion of the reclamation work, Mr. Asano will start several factories for cement, steel pipes and other industrial work, on the ground reclaimed.

Japan's River Conservancy Fund.—The Home Office has included in its estimates for the next fiscal year an appropriation of Y86,980,000 for the river conservancy fund.

FORESTRY AND LUMBER

Reforestation in Anhwei.—Mr. P. C. King, a Master of Forestry of Cornell University, Chief Forester of Anhwei Province, has made an object lesson for the province by planting 45,000 trees on the hills outside of the west gate of Anking. It is Mr. King's idea that, when these trees grow up, they will demonstrate to the people of Anking the advisability and practicability of reforestation. To provide seedling stock for further reforestation, a good-sized nursery has been established, and this nursery has already got more than 574,000 seedlings, which will soon be ready for distribution. A Forestry Department has been added to the Provincial Agricultural School, and the formation of a Forest Bureau, with forest stations established all over the province, is under way. Mr. King has had difficulty in getting the Bureau properly started and asked Civil Governor Li's permission to invite Mr. Lin of the Nanking University to conduct a Forestry Lecture Campaign in Anking. Mr. Lin is already stirring up a good deal of interest in Anking and as many as 3,650 persons attended his lectures in three days. The Governor was so impressed that he has asked Mr. Lin to go with Chief Forester King to tour the south of Anhwei, with a view to stirring up more interest among the people there.

Philippine Woods to U. S.—The largest individual order of high grade Philippine cabinet woods ever shipped from the islands is the million feet sent out by the Insular Lumber Company. The first lot of 400,000 feet was shipped loaded on the Dutch steamer Rondo, of Amsterdam, bound for the South Atlantic coast, via the Panama Canal, while the balance of the order, consisting of 600,000 feet, went forward on the Bessie Dollar to San Francisco, and the City of Rangoon to the United Kingdom. The sale of this large parcel of cabinet woods at this particular time is considered significant, as the purchase was made by one of the largest mahogany dealers in the United States, with branches in Europe, who have been using Philippine woods during the past few years in increasing quantities. This order of 1,000,000 feet for immediate delivery, would indicate that Philippine woods have taken their place along with mahogany and other high grade cabinet woods in the world's markets.

U. S. Expert Studies Borneo Woods.—An American forestry expert, D. M. Matthews, formerly in the forestry service of the Philippines, has been employed by the Government to make a general survey of the timber possibilities of British North Borneo whose whole is covered with forest. The trees are large and the entire coast-line is an unbroken jungle of palms and mangrove trees, while there are very rare hardwoods suitable for export. Several trees have sand-coloured and reddish woods, very like the so-called Californian red-wood. The most valuable of all Borneo timber is Billian, or iron-wood. This wood is extremely hard, sand-coloured when newly-cut, but darkens with age. It is so heavy that it sinks in water, and for this reason it cannot be rafted down the rivers. Nearly two inches of the outside of the tree is soft and worthless, but the inside can be used for almost any practical purpose where solid, strong and durable wood is required. This wood is ant-proof. A very valuable timber is known by the local name of Uratmata; it has a dark-red colour, grained, not dissimilar to American mahogany, and much desired for shipbuilding, masts and planks. Then there is the wood called Greeting, used for finishing and decorating purposes, although it is immensely heavy, being very like English black oak. The camphor-wood is very valuable for the export trade, having a very agreeable scent, and is in great demand in Hongkong for the furniture industry. The cost of procuring timber is very small. The system in vogue is to fell the timber, using Chinese coolies, and raft it down the rivers to the bay where it is led into lighters, which go alongside the big steamers. The supply of nearly all kinds of timber in British North Borneo will last for hundreds of years. There is an export duty on wood when sold. Only two companies engage in the export timber trade, and we believe that the entire supply goes to Hongkong.

Timber Output of Hokkaido, Japan.—The estimated amount of import of Hokkaido timber to Manchuria this year is about 100,000 pieces of timber each of a foot square and 12 ft. in length, valued at about Y250,000 which is about half the total of last year. The average annual imports from Hokkaido to Manchuria have rarely sunk below Y500,000 before and this falling-off is due to the general business depression in consequence of the War as well as to the comparatively large stock held over from last year. The timber season of this year was backward in its reopening by about a month owing to the belated thawing season. The timber season came in just when steamer freights were very stiff, and this and a few other considerations have made it impossible to lower the ruling price although when the Sino-Japanese crisis threatened to culminate in rupture, the leading local timber dealers cast about for some means to get rid of their stocks.

Philippine-China Lumber Trade.—Seeing in China a great market for Philippine lumber which is at the present time practically untouched, a new lumber concern, the China-Manila Timber Company, has been organized, with headquarters in Manila, and will go into the further development of the Philippine lumber trade at once. The new company has a capital stock of $250,000 gold and already $200,000 gold of its stock, the majority being in the hands of Charles S. Derham, has been subscribed and paid for. The incorporators of the company are Mr. Derham, Victor Hoffman, F. D. Almeida, Narciso Xavier and Hipolito Peralta, all of Manila. According to the articles of incorporation the company's stock is made up of 5,000 shares, selling at $50 each. While the head offices of the company are to be in this city, it is understood that branches will be opened in China coast cities in the near future.

Mindanao Lumbermen Want Standard Grades.—The Mindanao Lumbermen's association has presented a petition to the Government of the Philippines asking that the Bureau of forestry rules for grading lumber be enforced. The petition is in part as follows.

"There can be no question but that the interests of both buyers and sellers of lumber can best be served by the adoption of standard grading rules, such as the Bureau of forestry, appreciating the necessity of improving the manufacture of the Philippine lumber and standardizing the grades, has formulated. The Mindanao Lumbermen's Association through its individual members has carefully studied these rules and believes that their adoption is for the public good and the betterment of the lumber business. Therefore we respectfully request that all purchases of lumber in this Department be made under these rules."

This question of standard grading rules has frequently been the subject of discussion in the press, and has been strongly urged by the director of forestry. In the last annual report of the bureau of forestry, the matter is discussed as follows:

"Before Philippine lumber can secure for itself the place in the world's markets to which its qualities rightfully entitle it, it is necessary that there should be formulated standard grading rules and that they should be enforced by authoritative impartial inspection. In the absence of such rules, misunderstanding and financial loss are occasioned both to purchaser and seller, and this is particularly true in the case of foreign shipments. The Bureau of Forestry has already drawn up a tentative set of suggested grading rules, the work being done in co-operation with the Bureau of Supply and with a few of the principal lumber manufacturers."

It seems probable that as the Mindanao Lumbermen's Association has now taken definite steps to lead the way, other lumbermen may be induced to fall in line as the failure of Philippine lumber to measure up to the standard shown in samples has cost the producers many orders running into millions of feet.

Philippines and American Lumber.—Commercial Agent Franklin H. Smith, who is investigating the lumber trade in the Far East finds that the Philippine market, so far as imports are concerned, is dominated by American lumber. The islands provided a market for more than $500,000 worth of forest products in the 12 months ended June 30, 1914, and practically the entire quantity was shipped from the Douglas-fir mills of Washington and Oregon and the redwood mills of California. Mr. Smith found a sharp competition by native woods, and it is his opinion that this will inevitably become keener. Each succeeding year, he thinks, will witness an increasing cut of Philippine woods. The conclusion reached is that the prospective demand for American lumber in the Philippines is not particularly encouraging.

MINING AND METALS

Coal and other Mines in China.—According to recent investigations made by the Agricultural and Commercial Department, in China there are 12 coal mines, 2 iron mines, 1 nickel mine and 2 antimony mines. At present, the annual output of coal aggregates 15,000,000 tons, while 656,000 tons of iron are taken out. Should the mines be worked with modern machinery, the output would be tenfold the amounts now produced.

Gold-Mining in Szechuan.—Gold is found in many places in the province of Szechuan, China, and the upper reaches of the Yangtze are known by the natives as the Kin-ho, or gold river. Alluvial gold workings may be seen along many streams; near Ta-chien-lu, for example, 500 or more men are at work. The most important lode mine so far found is at Maha, in the southwestern part of the province, about 50 miles northwest of Ning-yuan-fu. Work on the mine was started some years ago, but on account of revolutionary disturbances not much has yet been accomplished, although several large and productive veins have been found. Two Chinese engineers who have studied in Belgium are now in charge of the property, and some 1,200 men are employed. Funds for financing

the work of development have been provided by the Government and it is the intention to purchase the necessary equipment in America. —Mining Press.

Yunnan Copper Mines.—From time immemorial, Yunnan has been known as a copper district. But owing to the primitive mining methods employed its yearly output is only 1,900,000 catties, supplying a small fraction of China's demand, the government mints using copper to the extent of ten million catties a year, the bulk of which is supplied by Japan. An engineer in the Department of Agriculture and Commerce has memorialized the authorities, according to Chinese Press reports, to work the mines with up-to-date machinery, submitting to their consideration at the same time an estimate for expenses necessary for the improvement.

Tayeh Iron Works.—As a result of the decision by the Directors of the Hanyehping Corporation to establish a branch iron works at Tayeh, a piece of land comprising a few thousand *mou* has been laid out for the site. An engineering department for the construction of the works has been opened at Tayeh. The Company has ordered its new installation from the United States for this branch.

Placer Mines in Heilungkiang.—Placer mines of a promising nature are said to have been discovered in Heilungkiang, and a plan to work them under Government management has taken a tangible shape in a placer mining office. Mr. Chu-chao has been appointed its director and Mr. Liu-wenfeng, manager.

Asbestos in West China.—Valuable asbestos desposits have been found in Szechuan Province near the city of Pachow. As the asbestos appears to be of good quality and the price is very low the possibilities of direct exportation to the United States is expected to be of interest to American dealers at this time.

South China Coal Field.—There is a very fair prospect for the development of one of the coal-fields of South China, within Hongkong's trade territory. At several localities along the West and North Rivers, near Canton, coal fields have been worked in native fashion for some time, and the output has come to amount to a considerable volume. A mining expert, reports American Consul-General George E. Anderson, of Hongkong, has had occasion to look into one of these fields and gives some facts of interest. The property is situated on the North River, about 160 miles from Canton, the actual mine being located a mile from the river. The survey for the Canton-Hankow railway crosses the property. The property occupies broken ground, embracing two lines of hills of considerable height. The native workings are located from 800 to 1,000 ft. up the side of one of these ranges, and the seam has been followed down for about 400 ft. It is about 9 ft. in thickness.

The region is essentially coal country; the predominating rock is limestone intermixed with layers of sandstone and slates. Millions of tons of coal are actually in sight. The Government analyst in Hongkong reports on a sample of this coal that it contains 0.80 per cent of moisture, 17.60 per cent of ash, 20.70 per cent of volatile combustible matter, and 60.90 per cent. of fixed carbon. The percentage of sulphur is placed at 1.2 per cent, and the calorific value is 12,830 British thermal units. The ash is greyish white in colour. The coke is of hard behaviour when burned, and burns with a fairly long flame.

The immediate need of these fields at present is modern machinery. The capital needed for the development of the property examined is placed at G. $150,000. On the basis of this investment an output of 500 tons of coal per day is indicated.

Alluvial Gold at Hsiaopingtao.—The proposed mining of alluvial gold deposits about Hsiaopingtao, at a short distance from Hoshigaura, Liaotung Peninsula, as applied for by a couple of local Japanese residents, was permitted by the Kwantung Government under date of the 2nd inst.

Japan's Lack of Steel.—All the shipbuilding yards of Japan now keenly feel the dearth of shipbuilding materials. Owing to the import of materials from England having been practically blocked by the European War, the home yards have had to depend for such supplies upon either the Government Steel Works, Edamitsu, or the United States.

Out of 3,000 tons of steel required for two vessels, each of 7,500 tons now building at the Mitsubishi Yards, Nagasaki, only 600 tons were supplied by England and the remainder by the steel works. The keels of these vessels were laid on June 7th last, and the work is making rapid headway.

The Osaka Iron Works and the Kawasaki Dockyard Co. have ordered a large amount of steel from the steel works, which is unable to meet their requirements. In consequence, these companies have already contracted with American steel works for the necessary supply. The current price of American steel has risen remarkably and is quoted at Y130 per ton for delivery at Kobe, showing a rise of Y30 over quotations a year ago.

Fushun Coal Exports.—The Fushun Coal export returns from Dairen for July total 20,838 tons, showing an increase of 925 tons over the previous month but a decrease of 6,024 tons from the corresponding period of last year.

Hokkaido, Japan, Mines.—A report from the British Vice-Consul Mr. G. B. Sansom at Hakodate regarding the mineral resources of the Hokkaido (the northern island of Japan) states that coal is plentiful and is found chiefly in the Ishikari district, the best known mines being those of Yubari, Horonai, Ikushumbetsu and Sorachi. The quantity of coal mined in 1912 was about 1,885,000 tons. There is only a small export as the domestic demand is great; but foreign-going ships frequently enter the port of Muroran for bunker coal. The output of sulphur in 1912 was 30,000 tons, as well as about 15,000 tons of crude brimstone. The quantities of other minerals mined are inconsiderable, but the poverty of inland communications makes the progress of mineralogical survey slow. In several parts of the island "magnetic sand" is found, but this, of course, has so far no commercial value. The petroleum found in the Hokkaido is said to be of rather better quality than that from the Echigo fields, but the volume of the output is negligible.

Mining in Chosen (Korea).—By an agreement concluded between an Italian Mining Company and the former Korean Government the company has been holding the right of selecting mining concessions in Huchang District, North Pyongando. The company has selected a concession, 387,000 tsubo in area, and the period for free selection has recently expired. It may be mentioned by the way that now that the period has expired those desirous of working mines in the District mentioned excepting the concession already selected by the Italian company may now apply for permission to do so.

By a similar agreement concluded between the Colbran Bostwick Development Company and the former Korean Government, the Company has held the right of selecting concessions anywhere in Kapsan District, South Hamkyongdo, and has so far selected four concessions for copper mining and fourteen for alluvial gold mining. We learn that the period for free selection by the company will expire by the end of this year.

Korean Mining News.—The Seoul Mining Co., operating the Suan concession in Whang Hai province, reports the following results for July at the Suan mill:

Ore treated, tons, 6270; Mill working days, 26½; Recovery, bullion, $45,785; Recovery, concentrates, $30,680; Total of, $76,465; Operating expenses were, $27,500; and Net earnings, $48,965.

Recent reports from the Suan Concession state that an extensive ore deposit has been partly developed near the Suan mill. The superficial area is about 5,000.000 sq. ft., the depth varying from 3 to 70 ft. Metal contents are approximately 50c. gold and 1.5% copper.

In June the Oriental Consolidated produced $136,500. Details of the May return are as follows: ore treated, 26,483 tons; yield from all plants, $154,231; the Candlestick mill started on May 15; 40 stamps at the Maibong are now dropping; extraction at the Maibong tube-mill was 85.6%, and with slag, 88 or 89%; and recovery at the Taracol cyanide plant 93.6%. There are 20 Korean 10-stamp mills working at Kuk San Dong. The tributers are working various stringers and pillars, and are paying the company a fixed mill rent. The company also buys the gold they produce.

Angaur Island Phosphate Mine.—The Japan Artificial Manure Manufacturers' Association is preparing a petition to the Government for permission to resume the working of guano fields at Angaur Island. In the petition the association will state that the manufacturers will take all responsibility for the working of the fields when any trouble crops up with the German owners on the restoration of peace. (Full description was given the Angaur Island phosphate deposits in the *Far Eastern Review* for July).

When Japan occupied the German islands in the Southern Pacific, the naval authorities placed the phosphate mines and plants in Angaur under care of the Nanyo Keiyei Gumi, a concern headed by Mr. Nishizawa, who is a sea adventurer of some note according to the Japanese press and whose enterprise and occupation of Pratas Island caused a diplomatic dispute between Japan and China some years ago. The Nanyo Keiyei Gumi did not hesitate to gather phosphate, using all the plants left by Germans, and shipped the output to Japan, the entire proceeds from the sale going to this corporation. This caused envy and opposition among business men interested in the fertilizer trade and especially among partizan politicians who are seeking Government favoritism. After many complaints from these parties and the home Government officials, the Naval Office decided to prohibit the Nanyo Keiyei Gumi gathering guano for export after August 31.

Now it is reported that the supply from various guano producing islands having long been stopped owing to the lack of ships, if the supply from Angaur also is stopped the only phosphate rock will be that from the Ocean Islands, being worked by the Mitsui Bussan Kaisha. The output from the Ocean Islands is about 70,000 or 80,000 tons a year, hardly one fifth of what Japan demands. It follows then that nothing can prevent the Mitsui firm from dictating the price and farmers already suffering from low market prices for their rice crop will be in greater difficulties if the price of fertilizer is enhanced. For the above reasons, representative companies and traders have now decided to

approach the Government to withdraw the restriction on the gathering of Angaur guano. Mr. Tanaka, President of the Kanto Sanso Kaisha, who is a leader of the movement, interviewed by a press representative, has suggested that the Angaur guano should be supplied to Japan, but not by one individual who can make a monopoly, but either by a body of manure companies or traders in general, or by the Government, and the guano produced should be sold to manure companies at a moderate price so that the farmers may benefit.

Burma Coal Deposits.—Coal of sorts has been discovered in Burma from time to time, but has not always come up to expectations. The latest find to receive attention is that at Wetwin, which is about nine miles in a direct line east of the Lashio branch of the Burma Railways at Wetwin station. The extent of this find is unknown, and, to determine it, extensive operations and borings would be necessary. The coal is of a dull black colour, resembling carbonaceous shale; and, on being exposed to the air, it quickly crumbles to powder. It does not appear to have any particular value as a boiler fuel, but might do well in the shape of briquettes.

World's Copper Production.—The production of copper in the world in 1914 amounted to 893,085 tons, a decrease of 91,775 tons from that of 1913. There was a falling off of more than 10 per cent in the output of the United States, Spain, Mexico, and Australia, but that of Germany, estimated at 30,000 tons, represents an increase of about 5,000 tons over the preceding year.

F. M. S. Tin Exports.—Following are the comparative figures for tin and tin ore exports from Federated Malay States for the first seven months of the past four years. Seventy per cent of the gross weight of the ore is taken as net weight of tin:—

Total for				Tin. Pikuls.	Tin Ore. Pikuls.
first	seven	months,	1915	39,575	411,703
do	do	do	1914	40,260	455,071
do	do	do	1913	51,121	421,435
do	do	do	1912	109,754	353,815

WIRELESS

U. S. to Tahiti and N. Z.—Wireless communication between San Francisco, New Zealand, via Honolulu and Tahiti, is to be established within the next five or six months. A French electrical and mechanical engineer is expected to arrive shortly to supervise the erection of a plant at Tahiti sufficiently powerful to bridge the gap between the French colony there and New Zealand.

Wireless for the Philippines.—The contract for the erection of the three 600-foot steel towers at Cavite, for the United States Government wireless station has been awarded to the Chicago Bridge Company. This company has also been awarded the contract for the erection of the steel towers for the United States Government wireless stations at Honolulu and San Francisco, the towers at Honolulu and San Francisco being identical in size with the towers to be erected at Cavite.

Southern Philippines Wireless.—Work on the new wireless station at Margosatubig is nearly completed. This work has been going on for some time and as soon as the new batteries are installed the plant will be ready for service. Margosatubig will be in direct communication with Samboanga, Malabang and the Manila cable system. The station is in a thickly populated section, where several large industries are being carried on.

Wireless to Japan.—To perfect tests for the longest wireless span in the world, from Hawaii to Japan, 4,100 miles, three of the leading men in wireless development visited Honolulu recently. They are E. J. Nally, vice-president and general manager of the Marconi Wireless Company with headquarters in New York; A. H. Ginman, general superintendent of the Pacific Coast division with headquarters in San Francisco; and C. H. Taylor, chief engineer of the high power stations. The experts spent most of their time at Kahuka where the big sending station is located. When the station was built the engineers had in mind the utility of a relay between Japan and America. Mr. Ginman was at Kahuka last August when the finishing touches to the station were being made.

Soon after their visit the Japanese Navy Office announced officially that the Naval Wireless Station at Funabashi, in China prefecture, would open for general public business soon as trial messages with the wireless station at Hawaii, a distance of 3,379 nautical miles, had been successful, both day and night. The new station is in the village Tsukada Higashi-Kashika county and the site covers a large area.

The towers are of steel frame work. There is one large one and eighteen smaller ones. The principal pole is 200 metres high and weighs 141 tons. It rests on an insulated stand. The basement consists of 600 tons of material. The eighteen towers are erected around the principal one, each at a distance of about 400 metres. Each of these poles is 60 feet high. They hold thirty-six wires stretching from the top of the principal pole, in the shape of an umbrella. The total cost of the construction of the station, including machines, land and buildings is 1,160,600 yen.

Wireless Telegraph at Singapore.—A permanent wireless station at Singapore is now in operation. The apparatus is a complete Marconi 5-kilowatt system, having a guaranteed range of 400 miles, which can be exceeded under favorable conditions. The station is on the coast along the eastern border of the city. The towers are 250 feet high. The total cost is estimated at Straits $200,000 ($113,540 U. S. currency). At the outbreak of war a temporary radio station was erected on the top of a building in the center of the city, but it is not a high-powered station and has been maintained for the Naval Intelligence Bureau here. It is announced in the Government Gazette of the Federated Malay States that 10 acres are required in Penang and Butterworth for a wireless telegraphy station.

TELEPHONES AND TELEGRAPHS

Shanghai Telephone Service.—The telephone service at Shanghai is provided by a local company which now utilizes upward of 5,000 telephones, and which is at present building an additional exchange in the residential part of the city. The telephone instruments now used by the company were manufactured in Sweden and are far from being as satisfactory as those in use in the United States. The Shanghai Mutual Telephone Co. (Ltd.), which provides the telephone facilities at Shanghai, was organized in March, 1900, and, during its 14 years of existence, has grown steadily. The nominal capitalization of the company is $600,500 divided into 20,000 shares of the par value of $31,125 each. There have been issued 14,540 shares at par value, making a total of $452,557.50 paid in. On this sum the company paid, at the end of the last fiscal year, a dividend of 8 per cent. The total pay roll of the company was, last year, $50,889. Of this amount $32,641 was paid to foreign employees and $18,248 to Chinese employees.

Chinese Telephone System for Tiehling.—The Chinese authorities and gentry at Tiehling have purchased 60 telephones manufactured at Osaka, a switchboard, and about 70 miles of telephone wires at the price of silver yen 13,000. A Japanese firm at Changchun is the supplier. The police station at Shantoupu in the north of Tiehling is to be connected with another at Tatientzu in the east. The remainder are to be used mostly for connecting the village police with the Tiehling police. The service was originally designed to afford quick communication with the police in case of bandit raids and is expected to extend later to Fakumen, Mukden and Kaiyuan.

Zamboanga Telephone System.—A contract has been awarded to The Bryan London Co., of Iloilo, for the installation of a telephone system for the city of Zamboanga. The contract calls for the Leich Automaphone system which requires no ringing of a bell when calling central, the lifting of the receiver being all that is necessary. The contract price is P14,160.00 and provides that the government is to construct and erect the concrete poles. These poles will also be used for the wire for the electric light system for the city of Zamboanga which the government will shortly install. Work has been started on the construction of the concrete poles and as soon as a sufficient number have been completed they will be set in place. These posts are 30 feet high with ample room for all the wires needed for the telephone lines, as also for the electric light wires. The telephone lines, it is understood, are to be extended to Tetuan and San Ramon Penal Colony.

Telegraph in Tayabas.—A new telegraph line has been established from Guinangan to the barrio of Kabibilan which connects up many of the outlying towns in Tayabas Province, P. I., and Governor Lukban is also erecting a new line between Pitogo and Macalalang.

Eastern Mongolia Telegraphs.—According to Dairen advices the Communications Office, Peking, has decided to start the construction of a new telegraphic line between Kalgan and Taonanfu and also between Mukden and Taonanfu immediately. The construction work will take six months. The Military Government of Jehol and the Provincial Government of Fengtien are to contribute between them sufficient out of this year's revenue for the purpose. The two Governments have been ordered to set about buying the necessary materials. For the other telegraphic lines to be constructed in the same region, the Communications Office, Peking, will make a monthly disbursement. These include a line from Kalgan and reach Mongolia via Dolonor and one from Jehol to Taonan by passing through Chaoyang, Chihfeng, etc. The three lines will aggregate in length over 1,640 miles, requiring an outlay of some $1,349,500 for construction.

Mindoro Estate Gets P300,000.—Governor General Harrison has announced an additional government loan of P300,000 through the International Banking corporation to the Mindoro Development company, owners of the San Jose sugar estate. This makes the total loan to the Mindoro company P900,000. The governor general some time ago passed favorably upon a deposit with the International bank of P600,000 to be loaned to the Mindoro company, but this proved insufficient. This aid was arranged for in the same manner as the loans of P2,700,000 for the aid of the sugar growers in Negros, Panay, Iloilo, and Capiz which is being handled by the Bank of the Philippine Islands. The original P600,000 and the additional P300,000 have been deposited with the International Banking Corporation at a fixed rate of interest, and by that bank is lent to the Mindoro company. The government is secured by the bank.

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American Locomotive Co. 13
American Rolling Mill Co. 31
American Tool Works Co. 5
Andersen, Meyer & Co. 2
Anderson & Co., Wm. H. 49
Austin Drainage Excavator Co. 21
Avery, Ltd., W. & T. Soho Foundry, ... 3
Avonside Engine Co. Ltd. 40

Babcock & Wilcox, Ltd. 49
Baldwin Locomotive Works. 17
Bank of China 9
Bank of Communication 8
Bank of the Philippine Islands .... Cover
Bohler Bros. & Co., Ltd. 56
British Aluminium Co., Ltd. 51
Burrell & Co., Ltd 60

Canada Carbide Co., Ltd. 21
Canton-Hankow Ry. Tenders for Sleepers 35
Canton-Hankow Ry. Tenders for Bridge Work 35
Canton-Kowloon Ry. 27
Chinese Government Railways of China 18, 22, 23, 25, 26, 28, 30
Chosen Railway 29
Cia. Trasatlantica. 55
Commercial Cars 15
Commercial Press, Ltd. 43
Craig & Co. A. F 2

Deutsch-Asiatische Bank 7
Dollar Co., Robert ....
Drysdale & Co., Ltd. 2

Escher Wyss & Co. 3
Evans, Joseph, & Sons 57

Fairbanks Morse & Co. 53
Far Eastern Review, The 44, 57
Fiat San Giorgio, Ltd. 4
Firestone Tire & Rubber Co. 41

General Electric Co. 1
Germinal Cigar & Cigarette Factory.... 4
Gest, G. M. 7
Goulds Manufacturing Co. 21
Green Island Cement Co., Ltd. 52

Harvard Medical School 56
Hasler Telegraph Works 53
Haywards, Ltd. 56
Hongkong & Shanghai Banking Corporation. 6
Hongkong & Whampoa Dock Co., Ltd... 10
Hurst, Nelson & Co. Ltd. 34

Ice Trade Journal Co. 43
International Banking Corp 6

Jardine, Matheson & Co. 46
Jones & Lamson Machinery Company. 40
Johnson-Pickett Rope Co. 42

Kailan Mining Administration .... Cover
Kaye, Joseph & Sons, Ltd. 2
Kellogg Switchboard & Supply Co. 21

Lebigh Car, Wheel & Axle Works 53
Lidgerwood Manufacturing Co. 4
Lima Locomotive Works. 14
London Emery Works 53

Mather and Platt, Ltd. 15
McConway & Torley Co., The 37
Mitsu Bishi Dockyard & Eng. Works... 10
Morse & Son, (Inc.) A. J. 2
Municipal Engineering and Contracting Co. 53
Mustard & Co., ... 55

Norton & Harrison Co. 58

Olsen & Co., Walter E. .... Cover
Owen Bros 3

Pacific Mail S. S. Co. 21
Pekin Syndicate, Ltd. 16, 47
Pienlo Railway 26
Priestman Brothers, Ltd. 12
Pyle-National Electric Headlight Co... 19

Railway Signal Co., Ltd. 56
Reddaway & Co., F. .... Cover
Rendrock Powder Co. 12
Royles Limited 39

Schuchardt & Schütte 43
Schmidt Superheating Co., The. 12
Shanghai Dock & Eng. Co., Ltd., The... 11
Shanghai Machine Co. 34
Shanghai-Nanking Ry. 28
Shewan, Tomes & Co. 45
Siemens China Co. 50
Simmons Manufacturing Co., The. 53
South Manchuria Railway Co. 24
Standard Oil Co., of New York...20, 32, 36, 54, 58
Stevenson & Co., Ltd., W. F 54
Strong Machinery Co., Frank L. 18
Symington Co., T. H., ... 15

Tattersall & Co., Alfred R. 3
Trimont Manufacturing Co. 43

United States Steel Products Co. 33, 38, 42, 48, 51, 54

Vulcan Iron Works. 57

Western Electric Co. 4
White & Co. J. G. 15
Worthington Pump Co., Ltd. 5

Yokohama Specie Bank, Ltd. 7
Ynchausti & Co. 44

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U. S. Steel Products Co.

Vegetable Oil Plants.
A. F. Craig & Co.

Ventilating Apparatus
Shewan, Tomes & Co.

Water Softeners
Babcock & Wilcox Ltd.

Waterworks Equipment
Edgar Allen & Co. Ltd.
Worthington Pump Co,

Weaving Machinery
Shewan, Tomes & Co.

Weighing Machines—Weigh Bridges
W. & T. Avery, Ltd.

Welding Outfits, Electric Arc.
General Electric Co.

Windmill
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U. S. Steel Products Co.

Wire Rope and Cables
Bohler Bros. & Co., Ltd.
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Shanghai Dock & Engineering Co., Ltd.

Wrenches
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TUNGCHWANFU, YUNNAN, COPPER MINES

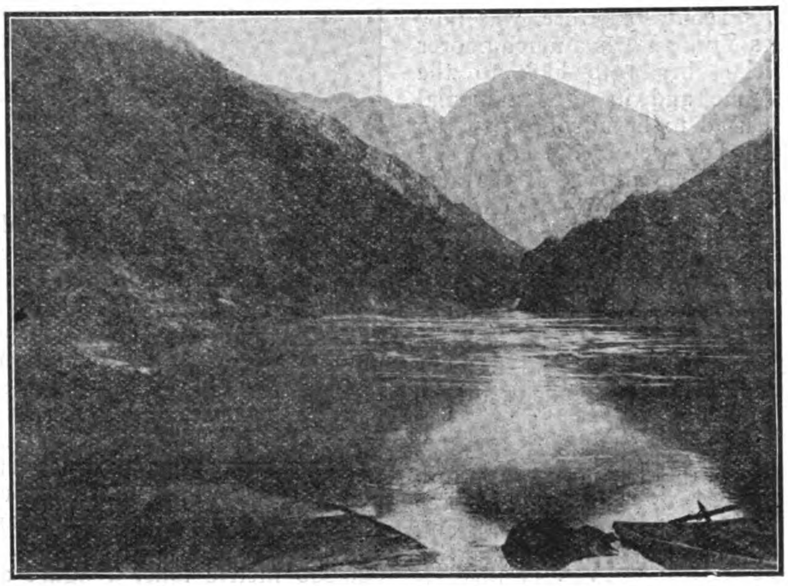
[BY V. K. TING, DIRECTOR OF THE GEOLOGICAL SURVEY, CHINA.]

In 1914 the writer was sent by the Ministry of Agriculture and Commerce to Yunnan to study the mineral prospects in the Eastern part of the province through which the projected Chingchou (in Canton)—Chungking railway was to pass. The greater part of the time was devoted to that purpose, but as the famous copper mines in Tungchwanfu are of great economic interest, though they lie rather far away from the projected railway, I paid them a short visit. Geologically the region proved to be very complicated, and such scientific results that could be obtained by a hurried examination will eventually be published in the Bulletins of the Geological Survey.

Topography and Geology

The mines are officially divided into five groups, namely Tangdan, Loshüe, Tasui, Moulu and Tiechang. Except the last locality, which is on the west side of the Upper Yangtze, near the Szechuan border, the four other groups are situated between the Yangtze and its tributary, the Hsiao-kiang, to the south-east of Tungchwanfu city. The accompanying sketch map on a very small scale shows their relative positions.

In order to understand the origin of the deposit it is necessary to look into the larger features of tectonic geology. The two provinces of Yunnan and Szechuan are separated, not by the Upper Yangtze as one would expect, but by a range of mountains known as the Lunanshan, which is the Southern extension of the Taliangshan range. The range as a whole runs N. N. E.—S. S. W. with a steeper escarpment on the east side. The higher part of the mountain consists of Permean and Upper Carboniferous limestone underlaid by sandstone, clay and limestone of Carboniferous age. These at first dip more or less constantly towards W. W. N., but as we descend further toward the Yangtze numerous faults and shearing planes, mostly parallel to the strike, are met with, and the rocks become more or less metamorphosed. Scattered through these metamorphosed palæozoic sediments, and the limestone above them, are numerous but small irregular veins of sulphide of copper (chiefly chalcopyrite). These deposits are worked in more than 20 places, with Tiechang as their centre. They are all on the west side of the upper Yangtze which has cut a very deep gorge through the country, for the higher ridges are considerably over 10,000 feet above sea level, while the absolute height of the river bed is less than 2,000.



THE UPPER YANGTZE NEAR YENTSIN

Near the river bank faulting and shearing become still more complicated and a salt well (Yentsing) situated on the left bank indicates the presence of upper Permean formation which on the right bank is thrust against beds of lower palæozoic age. Going from the river eastward extremely steep slopes have to be climbed before the watershed between the Yangtze and the Hsiao-kiang is reached. This is highest in the South where a massive range capped by Permo-carboniferous limestone, running in the direction W. W. N.—E. E. S., forms the Southern limit of the metallogenic province. This mass is known under different names, such as Tashüeshan, Fongmoling, and Kiaotingshan. Towards the North the ground gradually becomes lower until we reach the village of Shiangpiling where the Hsiao-kiang empties itself into the Yangtze. Within the triangular area bound by the two rivers and the Tashüeshan there are sandstone, shale and limestone varying from carboniferous to Cambrian in age, more or less dynamically metamorphosed so that the individual formations are difficult to distinguish. They are intruded by numerous gabbro masses which can probably be correlated with the gabbro intrusions I found in Hweilichou in Szechuan, where they are intimately associated with the copper deposits.

Character of the Deposits

The deposits are found in two different kinds of rock: one is metamorphosed sandstone and shale, the other is limestone—about 80% of the ore now worked comes from the latter. Thus the ore in the three principal centres Tangdan, Loshüe, and Tasui is in limestone, but it differs in its mode of occurrence. That in Tangdan is an irregular stockwork with occasional concretionary masses of barite. The original chalcopyrite is often altered into carbonate and the richest ore rarely exceeds 15%. As it occurs in a concentrated area near the village, easy to work and to smelt, Tangdan produces more than 45% of the total amount of copper produced in Tungchwan. In Loshüe and Tasui, on the other hand, the chief minerals are erubescite and chalcocite, often extremely rich. They occur in irregular

masses varying from 4 feet to a few inches in width. Quartz is often associated with the ore body, but the boundary between the country rock and the ore body is nowhere clear. They are probably substitution products. Stockwork similar to that in Tangdan occurs also, but much less worked than the high grade ore. The other two mining centres, namely Tiechang and Moulu, have their principal ore in the metamorphosed beds, mostly chalcopyrite with occasional mixture of silicates which make the ore more difficult to smelt. It consists of impregnations irregularly distributed in the rock—those in Tiechang are small and scattered, but in Moulu they are more concentrated and richer.

History

With full access to all the official and private records and archives I have compiled a sufficiently accurate history of the copper mines since the year 1697. It falls naturally into five periods and I will give a brief account of each separately.

1st Period (1697-1737). The whole territory of Tungchwanfu was under the complete rule of Lolo kings before the 14th century when it came under Chinese administration. The ancient feudal lords were, however, left to do much as they liked, so the subjection was rather nominal, and during the whole of the Ming Dynasty the Lolos gave Yunnan and Szechuan plenty of trouble by their frequent raids. With the establishment of Manchu rule in 1644 they were pacified and a few Chinese colonists began to find their way into that remote region. No doubt copper mining was first started some 30 years after by the miners from Hunan and Hupei. In 1697 the copper mine of Tangdan was mentioned for the first time in official records, and a tax collector was soon sent there. The miners were allowed to sell their copper provided they paid the 10% tax. This lasted till 1725. A year before that date the Lolo feudal lords in Tungchwan and Chaotung rebelled and their rule was consequently abolished and the whole prefecture came once for all under direct Chinese administration. Moreover, the prefecture which formed part of Szechwan before, was now separated and given to Yunnan. As Yunnan was a much poorer province than Szechuan, the officials began to look to the flourishing copper mines for revenue and in 1726 a partial monopoly was established. Money used to be advanced to the miners without interest, but in return they were required to sell all their copper to the Government at a fixed price of 5.4 taels per picul, a price that was little more than 50% of the market price at the time. This did not, however, do much harm to the miners because the miners were not compelled to borrow money and those who worked with their own capital could do what they liked with their copper. According to the records the copper bought at official price amounted to 9,000 piculs annually, about $\frac{1}{5}$ of the total production, and this was sold by the Yunnan Government to the neighbouring provinces at a big profit.

Second Period. (1738-1858).—Towards the year 1738 a great change took place. Copper was urgently required in Peking for coining the brass cash, and the little copper produced in Hupei, Shansi, and Chihli was utterly insufficient. Foreign copper (Japanese?) had to be imported, but as its price was 16 taels per picul, and that of Yunnan copper 11 taels, it was decided to stop the import and put aside one million taels to work the copper mines in Yunnan. In 1738 a complete monopoly was established and no one could work copper mines without getting capital from the State and he was bound to sell his copper to no one else but the State. The provincial officials were held responsible for sending to Peking annually 44,400 piculs of crude copper and since 1741 it was further increased to 63,314.4 piculs. If there was a surplus the Provincial authorities were allowed to sell it to the other provinces at a profit. No important change took place till 1858 when the Mohammedan rebellion broke out. During the whole period, the highest price paid to the miners was 7.452 taels per picul (1822-1858) and the lowest price was 5.08 (1738-1753). In both cases it was below the actual cost of mining and smelting for the miners had to pay a heavy tax of 14.2%, and yet from 1738-1858 the annual production never fell below 70,000 piculs and in 1773 and 1774 it was over 135,000 piculs! The apparent paradox is explained by the fact that, though the nominal price

LIMESTONE SLOPE NEAR LOSHÜE COVERED WITH DEBRIS

was very low, the actual amount obtained by miners was at least double, for the money was paid *in advance* and no miner ever paid back the full amount of copper due. The officials dared not press them for fear that the production might fall below the required figure (63,314.4 piculs) when they would be forced to buy copper out of their own pockets to make it up. So this kind of bad debt was patched up by manufacturing high administrative expenses and freight rates, so that the total cost per picul paid by the Peking Government was more than three times the nominal price allowed; for example, between 1754 and 1820 the average cost per picul delivered at Peking was 18 taels!

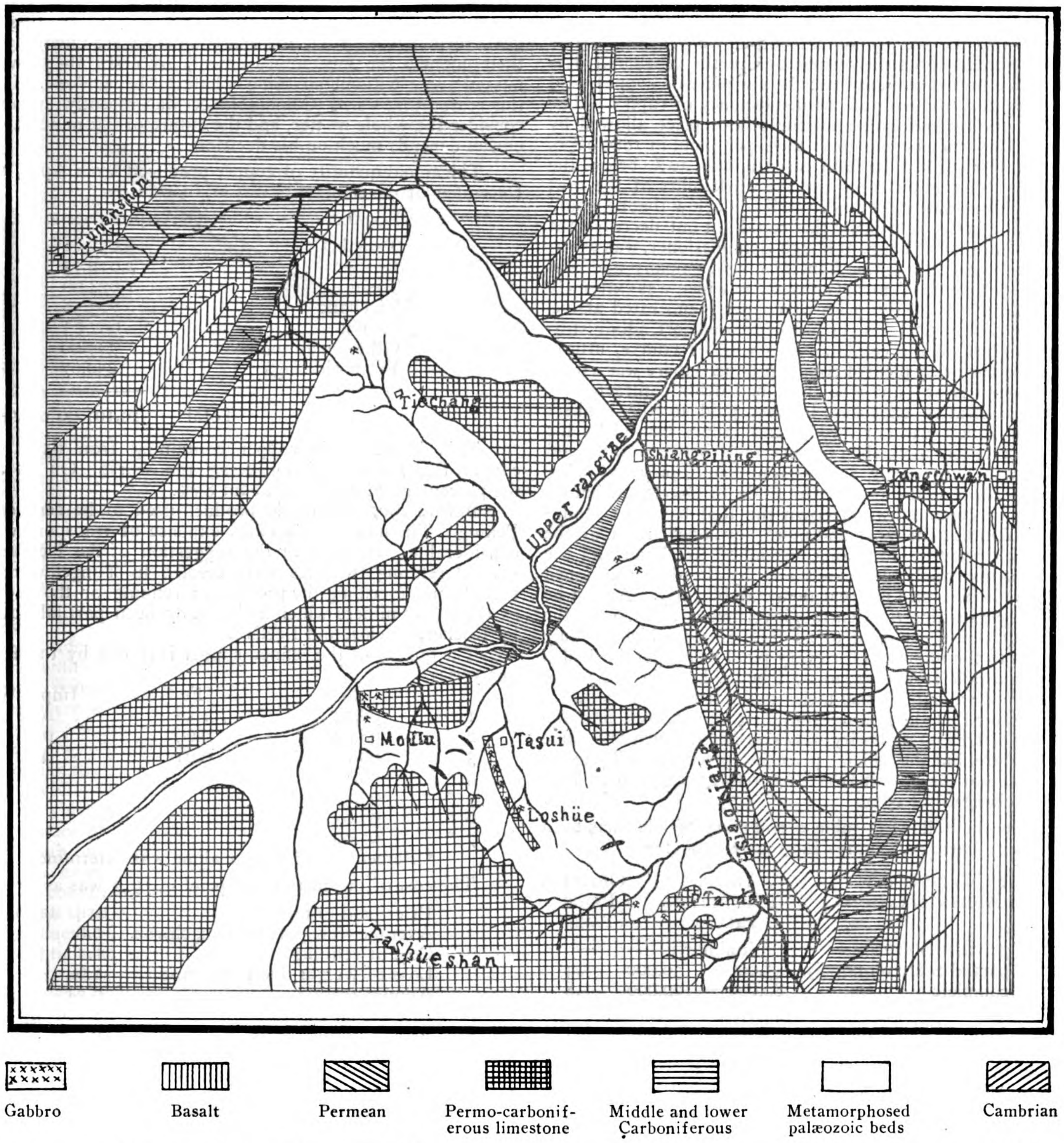
The second period, therefore, represented the most flourishing time for the copper mines and from 1738 to 1858 the total amount of copper produced in Tungchwan could not be less than 600,000 metric tons, a figure approximately equal to $\frac{2}{3}$ of the total production for the whole world in 1911.

Third Period (1874-1887).—In 1858 the Mohammedan rebellion put a stop to all mining activities in Yunnan. It is in fact the most important landmark in the mining history of that province, for with the single exception of the tin mines in Kokiu nowhere have the mines been able to recover completely though half a century has elapsed. From 1858 to 1874 not a single catty of copper was produced, but as order was gradually being restored, the provincial government began to look to Tungchwanfu for their old source of revenue. Utter lack of capital and the terrible effects of depopulation made improvement slow and difficult. Several efforts were made to attract private capital, but all were futile, and during these 13 years the total production for the whole province was 83,700 piculs, about 80% of which came from Tungchwan, thus its annual production was about 5,000 piculs—only 1/16th part of the former figure.

Fourth Period (1888-1911).—In 1887 Mr. Tang-chiung was appointed Commissioner of Mines to Yunnan. He was in many

SKETCH MAP OF THE TUNGCHWANFU COPPER MINES

SCALE 1 : 400,000



ways more advanced than his time. Before this appointment he had held high offices in Yunnan and knew the province well. He repeatedly pointed out the evils of State monopoly and thought that the only remedy was to create a private company which he immediately set himself to form under the name Merchant Mining Company in order to work the deposits by modern methods. For this purpose he engaged four or five Japanese engineers to take charge of the mining operations and ordered some boilers and furnaces with a view to modernise the smelting. He had a working capital of about 200,000 taels, mostly borrowed by himself from a rich Yunnanese banker. Unfortunately his Japanese experts appear to have been ill-qualified, for no surveying or development work was done, and spacious horizontal and inclined shafts were driven anywhere. More than a year passed away and more than 100,000 taels were spent without seeing any copper. The Commissioner became alarmed, but he was repeatedly assured that copper was forthcoming, so things continued for some time. The native miners, however, were impatient. They were at first awed by the presence of foreigners, supposed to be superior in knowledge—according to the story circulated even to-day, the Japanese boasted that with the telescope and compass they could see through the rocks and make sure the ore was there. As time went on, however, the shrewd miners became suspicious and to verify their suspicion, they buried a large mass of copper ore immediately below the opening of the shaft. Then the Japanese were asked to inspect the spot with their telescope and compass to see if any ore were there. One receiving a negative answer, shouts of laughter and contempt greeted the supposed experts, and the ore was dug up in their presence. This seemed to satisfy the Commissioner that the Japanese were imposters and they were dismissed accordingly, and during the following 19 years of his tenure he tried European methods no more.

From that time on he reverted to the old system entirely; thus money was advanced to the numerous small miners and they paid in return all their copper at a fixed price. In the 18 years following (1889-1906) he actually sent to Peking 180,000 piculs of copper, so that the average annual output was exactly 10,000 piculs, approximately ⅛ of the output before the rebellion. His failure was due to two main causes; the low price of copper paid by the Peking Government and the insufficiency of capital. The cost of production was doubled but the official price allowed by the Central Government was 10.3 taels per picul in 1889-1890, 11.3 taels in 1896-1898. In both cases it was 40% below the market price. Thus it put a limit to the workability of the ore; no miner could work any ore under 10%, as below that he would be working at a loss. Obviously this could not but decrease the production. Moreover Tang, although Commissioner, was working under the name of the Merchant Mining Company and was regarded as such by the Central Government which was extremely hard on him, for besides the price of copper enumerated above, he was allowed only 5.7 taels per picul for transport, administration, and interest on the capital. This was, of course, utterly insufficient, so for every picul of copper produced there was a dead loss to the company or Tang who from bad debts contracted by miners, administrative expenses, interest paid to the bankers (from whom money was borrowed), and failure caused by his Japanese experts lost more than 650,000 taels between 1888 and 1898. He was temporarily saved from bankruptcy by being allowed to monopolise the export tin trade to Szechuan, but as the new line of communication down the Red River to Hongkong via Tonkin became more and more developed, most of the tin from Kokiu went to Hongkong instead of Szechuan and the profit of this monopoly decreased and by the date mentioned above (1898) he was still in great financial difficulty. At last he succeeded in persuading the Central Government to increase the price from 13.3 taels per picul to 20 taels out of which he only paid 14 taels to the miner, so for every picul of copper he had a profit of 6 taels and from 1899 to 1906 he paid off the remaining part of his debt (about 350,000 taels) and left his post in 1906 a freeman. After that the mining administration passed into the hands of the provincial authority who continued much the same system as before, but the official price increased from 14 to 17 taels per picul and the output from 10,000 to 13,000 piculs. This remained unchanged till 1911.

I give in the following table a summary of what has been said above with dates and figures in greater detail:—

Year.	Method of Administration.		Annual Production. Piculs	Official Price. Taels
1697—1725	private enterprise		unknown	—
1726—1737	partial State monopoly		45,000 — 50,000	5.4
1738—1753	complete	do	80,000 — 100,000	5.8
1754—1772	do	do	100,000	5.5—7.0
1773—1822	do	do	100,000 — 130,000	6.4
1823—1858	do	do	80,000 — 100,000	7.45
1874—1887	provincial monopoly		5,000	10.3
1888—1892	Merchant Mining Co.		10,000	1c.3
1893—1897	do		10,000	11.3
1898—1899	do		10,000	13.2
1900—1906	do		10,000	14.0
1907—1911	provincial authority		13,000	17.0

The Present State of Exploitation

After the revolution the Yunnan Government naturally took into its hands the same monopoly. As, however, no copper was now sent to Peking, it was sold to the merchants in Tungchwan who exported it to Szechuan. Soon it was found that the net profit was enormous, for the Government paid only 16 taels per picul to the miners for crude copper containing about 85% and after a simple refining at a small cost, the purer copper could be sold in Tungchwan at more than 30 taels. With economy of administration and a slight increase of production (about 14,000 piculs in 1912), they managed to reap a big profit. Encouraged by this success, they organized a company with a capital of 300,000 taels in order to develop the mines on a larger scale. Half of the capital was subscribed from private sources, and in March, 1913, the whole administration was handed over to the company which was entirely controlled by private shareholders. The result turned out quite different from what was expected by the Yunnan Government, for, finding that the existing system gave them great profit, the shareholders were unwilling to risk their money for any improvement, so more than two years passed away without anything whatever being done. It is for this reason that a new Commissioner was recently appointed to consider the whole matter, and the future of the mines at Tungchwan depends much on his decision.

The actual quantity of copper produced from April, 1913, to December of the same year was as follows:—

Locality	Amount in piculs
Tangdan	5,057.68
Loshüe	2,018.15
Tasui	1,074.00
Tiechang	763.58
Moulu	607.95
Other small mines	349.96
From old slags	230.67
Total	10,101.99 piculs

This is all crude copper containing from 65 to 90% of copper, that from Tiechang being the worst. On the average the percentage of copper is about 85%.

Before 1907 this crude product used to be sent direct to Peking. The unnecessary extra expense of transport was thus considerable. In 1908, at the suggestion of the Tientsin mint, several refining furnaces were erected in Tungchwan. Space forbids me describing the process of refining or the metallurgy of the native miners which had already been partially described by Rocher, Duclos, and Leclère.

The quality of the refined copper is shown by the following analysis:—

	Cu	Fe	Impurities
1	98.24	1.58	0.18
2	98.82	0.69	0.49
3	99.15	0.61	0.24
4 *	99.14		
5 *	99.17		
6 *	97.03		
7 *	95.00		

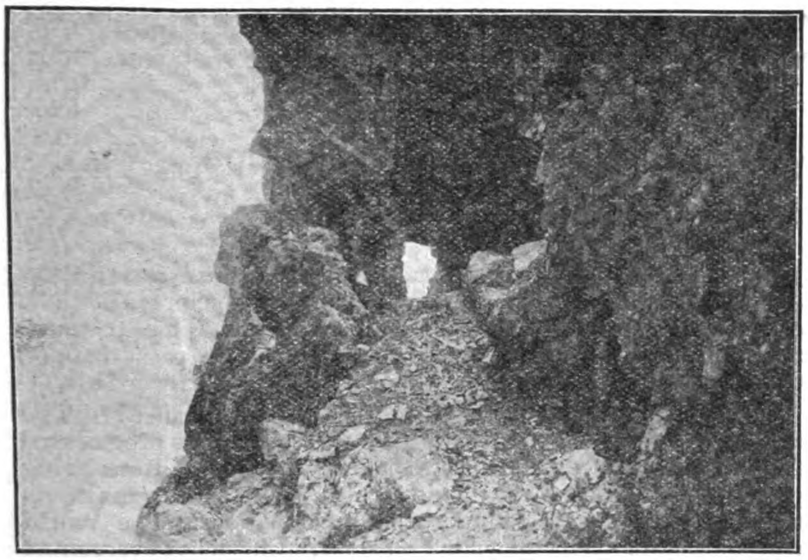
* Percentage of copper alone was determined.

The cost of production per picul in 1913 was as under:—

Price paid to miners	16.4 taels
Average transport to Tungchwan	0.8 ,,
Cost of refining	1.4 ,,
Loss of weight due to refining	1.64 ,,
Administration	0.74 ,,
Interest on shares	0.109 ,,
Tax	0.85 ,,
Total	21.939 ,,

Proposed Administrative Reform

From what has been said above it is clear that apart from the natural drawbacks of the mining and metallurgical methods used, the stumbling block to any development is the character of the monopoly. Not only do the mines suffer from the evils inherent to any monopoly, but the worst is that this particular monopoly does not actually work the mines! A small sum is advanced to the miner and he is compelled to give in his copper at a low price. The evil is two fold: first, the profit of the miner is so small that there is no inducement to work. He works because he can find nothing else to do to gain a living. Secondly, the low price imposed puts a limit to the workability of the ore, for at present the poorest ore workable is 8%, which is ridiculously high when one remembers that the Mansfeld copper slates contain only 3%. As long as this state of things exists no increase of production can be hoped for. The Government must either work the mines or leave the miners to work them. Perhaps it is best to do both as the area is far too big for a single organisation to manage if anything like modern



A HORIZONTAL TUNNEL CUT THROUGH LIMESTONE, NEAR MOULU

working is intended, and many of the deposits are too poor and too scattered. It is hoped that the new Commissioner will see his way to bring about a healthy change.

Practicability of Introducing Modern Methods

The question rises, however, that if the Government or a capitalised company is going to work the mines, will it pay to do it on a modern scale? This depends chiefly on the character and quantity of the deposit, the means of communication, the proximity of good coking coal, and the cost of motive power. Let us consider them separately.

I have already indicated the character of the deposit so it remains to consider its quantity. The few days that I was able to spend there were, of course, utterly insufficient to enable me to form a scientific opinion. All that I can say is that I was favourably impressed, for in the several shafts I descended I found an extremely rich ore body measuring more than 25 feet in width though its shape was irregular. This was in limestone which formed a continuous band from Tasui to Loshüe for a distance of 6-7 kilometres in length. Almost along the whole length of it are scattered numerous small shafts which prove the existence of the ore. Again the limestone near Tangdan containing the stockwork forms also an East-West belt not less than 2.5 kilometres in length, and is famous for its productiveness of a comparatively low grade ore. I think these two localities, at any rate, will prove eventually to be suitable for modern methods as they are also the nearest mines to Tungchwan. The mines in Moulu deserve also serious investigation as the copper occurs also in the metamorphosed sediments which are easier to mine, especially where the low position of the mines and the existence of a high waterhead may make hydraulic sluicing possible. No doubt in all the mines a good portion of the ore has been worked out, as can be seen from the statistical data given above. On the other hand the very productiveness in the past proves to some extent the value of the existing deposit, for mining by old fashioned methods is limited by two irresistible factors, namely the lack of ventilation and the trouble of ground water.

The means of communication, or rather the lack of it, is a serious hindrance, but considered more closely it is not as bad as it seems. The following table gives the distance of the principal centres from Tungchwanfu city:—

LOCALITY	DISTANCE IN LI
Tangdan	150
Loshüe	180
Tasui	190
Moulu	250
Tiechang	240

On the average the cost of transport of evey picul of copper is about 0.3 tael per 70 li making the cost of transport to Tungchwan about 0.8 tael per picul at the present relative amount of production. Tungchwan is about 1780 li from Chungking, but as the greater part of the way can be done by water, the cost of transport per picul from Tungchwan to Hankow is about 5 taels. The total cost from the mines to Hankow is therefore a little less than 6 taels per picul. This is, after all, not prohibitive if the low cost of production can be maintained. The Chungking route is the one actually followed by merchants. There exists a direct road from the mines to Yunnanfu, but the distance is over 400 li and the prohibitive railway freight, transit dues, double export and import duty make it more profitable to transport via Szechuan such copper as is destined for the home market. There is little hope of railway construction, as for the present at least it cannot be justified on economic grounds.

The lack of good coking coal near by will be the most serious question for consideration. The carboniferous coal which usually occurs below the Permo-carboniferous limestone is unfortunately of very bad quality and non-coking. The nearest coking coal, upper Permean in age, is found at Whanglishun, more than 300 li away, on the East bank of the Niulang-kiang. Good coke can be obtained in Tungchwan at $16 per metric ton, but to transport it further to the mines would increase its price enormously. I do not think it possible to get coking coal at the mines for less than $25 per ton. Obviously if we have to use coal for the power station, and the whole of the smelting process, the cost will certainly be prohibitive. Fortunately we can reduce the coal consumption to the minimum by some other means. The tributaries of the Yangtze and the Hsiao-kiang have cut very deep gorges in the district but the fall in every case is very steep—thus

A TRIBUTARY OF THE UPPER YANGTZE, NEAR TIECHANG
(TAKEN FROM A CONSIDERABLE HEIGHT ABOVE THE RIVER)

a sufficiently high waterhead is obtainable. Many of these have enough water all the year round. In one of them just North of Tangdan for example the amount of water flowing per second is about 60 cubic feet in September. With a fall of 1 in 30 and a waterhead of nearly 200 ft. the above amount of water would be enough to generate 200 horse power which is probably all that is required in the beginning. If this is chosen as the centre for smelting, 15 kilometres of air tramway and 7 or 8 kilometres of light rail will connect all the important mines in Tangdan and Loshüe to the works. Again, as charcoal is much cheaper than coal (10 taels per ton), it will be found advisable to adopt the Japanese Mabuki type of furnace in which charcoal is used instead of coal, and the roasting can be done by Chinese methods, so that coking coal is indispensable only for the blast furnace.

The task before the new Commissioner is therefore hopeful, but by no means easy. Scientific investigations must be carried on at the same time as administrative reform, and he has to fight against the vested interests of the monopoly, the conservative habits of the miners and the interference of the provincial authorities. But he may at least count upon the support and advice of the Mining Department, and wisdom and energy will gain for him the everlasting gratitude of the Tungchwan miners as well as proper official recognition.

THE WRITING ON THE WALL

The Effect of China's Foreign Policy upon her National Existence.

[BY SANS GANTS.]

How can China be saved? This is the question asked daily by Chinese and foreigners alike. In many cases the interest shown by foreigners in the work of saving China eclipses that of many Chinese. The notorious Twenty-One Demands made by Japan upon China in January of this year acted as a general alarm among the world Powers, sounding a signal to all who had interests to protect in China to be on the alert. The Powers affected by these demands were those possessing large financial and commercial stakes here, and it was the business men abroad who caused the respective governments to awaken to the realisation of what was happening in the Far East.

It seems a sordid thing that commercial reasons alone should prompt the world Powers to an interest in China, but it is true, and that truth should control the foreign policy of the country. When the Peking Government realises that little sympathy for China is forthcoming from any nation that is not based upon the opportunity afforded by China for commerce, then, and only then, can the Chinese Government take proper steps for their own salvation.

China cannot save herself as an independent nation unless she obtains the active assistance and co-operation of foreign Powers, and this help will not be given gratuitously. It is impossible to obtain something for nothing. All the good and high-sounding talk in the numerous Presidential Mandates will not serve to maintain the national entity of China, nor deceive any longer the foreigner resident or interested in the East.

For the next twenty-five years the attitude of China towards the Powers will be the determining factor as to the existence of an independent China. The world has waited most patiently for China to formulate and put into force a well defined and approved foreign policy. At the time of the Sino-Japanese War there were many who felt that it would make China realise her true position, but needless to say there were none of China's well-wishers who were not intensely disappointed. Then came the Boxer Troubles, the Russo-Japanese War, the Twenty-One Demands, and now the interference of Japan with the internal administration of China; all are tests of what China can and will do. If it were necessary it would be a simple matter to cite hundreds of instances in the history of China's foreign relations that could also be taken into account as tests of China's ability or inability to save herself. Dating from the Treaty of Nerchinsk, being the first foreign treaty signed by China, and which for the first time evolved the law of exterritoriality, there have been instance after instance of China ramming her head against the stone wall of foreign determination to develop China if she were unwilling to do the work of her own volition. With the more recent events during the lifetime of the majority of us we have sufficient test of China's wisdom or unwisdom in the conduct of her foreign relations.

In the Sino-Japanese War, the Russo-Japanese War, the Boxer Troubles and the Twenty-One Demands we find that the sentence of death was passed upon the national independence of China, and in each instance it was commuted by the world Powers with the hope that China would, by being accorded another chance, appreciate her mistakes and awaken to a realisation that she must devise a foreign policy that would assure her of her national entity. The world has been extremely patient with this great nation, and the exasperating indifference of China has begun to make the Powers weary of rendering her further assistance. While in each great crisis the world has come to the rescue of China merely in the name of trade, yet China has had the opportunity presented on each occasion of doing the one thing and the only thing that will save her—ensuring the adoption of an enlightened foreign policy. The day may come when the Powers will be forced to the conclusion that a China ruled by Japan, or a dismembered China, will present the opportunities that are desired—the opportunities of equal rights in trade in a country that is open to all. When the Powers do come to such a definite conclusion the sentence of death will be passed upon China's national independence that will be forever irrevocable.

Can China save herself without foreign assistance? The answer is a simple and emphatic No! The world has progressed too far in advance of China to allow of sufficient time being given for the development that is necessary for China to make up the lost time and rank with the other great nations. The world will not wait for China to struggle on alone. China, however, must develop and this development cannot be undertaken without the direct and interested assistance of foreigners.

In rendering such assistance the Powers will demand one thing in exchange for the help given, and that will be the opening of China to trade. A price must be paid for the independence of China, and that price is equal trade opportunities to all nations. When this price is paid the influx of foreign brains and capital to be expended in the building up of a commercially and financially strong China will be the result. If China continues to refuse to pay the price she will be confiscated by the world Powers and sold to the highest bidder. She will be sold as a whole or in part—the decision to rest with the Powers who are physically the strongest.

The present monarchical movement is in a sense another test of China's ability to appreciate her position among the world Powers. It is obvious that a mere change in the form of government will not be the salvation of the country. To many this is the final test that the world will allow in behalf of China's competence. It is a simple matter for China to pay the price that has been asked for her salvation—equal opportunity to all in a free and open country. For it China can purchase national independence and prosperity, and it is high time that the Government at Peking should realise this.

The world will not wait for China to build up her productive centres, for there is, from all indications, nothing that tends to make one believe that there is any intention on the part of China to develop her resources of her own accord. The world has come to believe that each delay given to China merely means an indefinite postponement of the great work of development. The foreign nations have determined that China shall be developed, and in those centres that are believed to be productive, and where the foreigner finds it an easy matter to produce and market, he will, if force is necessary, use force to gain the opportunity that should have been his to carry on legitimate trade, and when he has gained this opportunity by the force of arms he will go one step further and annex the territory to facilitate his business. The reason for annexation is that he will, under his own flag, receive protection that is not guaranteed under the rule of the Chinese.

The case of Manchuria is clear to all. Here is one of the richest and most productive centres that has fallen to the people of any nation. At one time America, Great Britain, Russia and Japan fought for equal trade opportunities, which were denied to one and all alike. Every move was blocked by the Government. Russia and Japan by force of arms took the matter into their own hands, and with the recent Twenty-One Demands we see Manchuria passing from under the jurisdiction of China to Japan. China cannot give equal opportunities to all now. It is too late. The policy of China in regard to the disposition of any and all questions affecting Manchuria is now dictated by Tokio. If the check-mating and blocking policy of China towards the foreign nations had not been as it was there would now have been a rich and prospering Manchuria under Chinese rule.

Oftentimes we hear from Chinese that the United States should not have allowed Japan to take control of Manchuria, but should have helped China to keep this territory. In other words there are those who foolishly believe that the United States was going to lose millions in money and thousands in men to keep Japan from taking a territory in which the Americans had to fight for everything they got under Chinese rule. Had the territory been opened to foreign trade and residence, there would then have been such great commercial and industrial interests of the various powers in Manchuria that Japan would not have dared attempt to predominate. As long as the Chinese Government persists in this policy of blocking legitimate foreign trade and residence so long will foreign nations feel indisposed to fight for China.

In Shantung and Fukien provinces China has the same problem as Manchuria confronting her, and if we are not greatly mistaken the same policy used by the Government in Manchuria will bring similar results in these two Provinces. There is such a thing as postponing a matter until it is too late. This was done in Manchuria. When the Twenty-One Demands were presented Peking would have been more than glad to have had such heavy foreign interests in Manchuria that the action of Japan would have been impossible. But such interests are impossible unless equal trade opportunities are given to foreign nations. As stated above the time may come when the sentence of death will be passed upon the independence of China, and then it will be too late for China to have anything to say as to the disposition of any part of her territory.

Throughout the anti-Japanese campaign it seemed clear that this country was under the impression that the world Powers would not allow Japan to take China. This is an idea that is doing more harm than anything else to China. It is possible that with a greater Japan greater opportunities for trade will be given than now exist in Japan. It may be that Japan will come to realise that it is to her interests to make the position of the alien resident upon her soil more comfortable. Restrictions that are now placed upon foreign residence and trade in the Island Empire may to a large extent be removed and a freer scope be given to the foreign merchant. There is to-day a growing feeling among many of the leading Japanese that their treatment of the foreigner is altogether too strict to receive approval, and with the development of her resources now vouchsafed to her in the great territory of Manchuria it may be that her position will be so changed that it will be an easy matter to give encouragement to foreigners and their capital.

At any rate there is one thing that the foreigner and the Japanese both have in Japan, and that is protection of their interests. Life and property are protected. While the judiciary in Japan is still to many of us a crude thing yet there is constant progress. New conditions imposed by foreign intercourse are making the Japanese daily realise that certain shortcomings will have to be rectified. There is a constant search in Japan after that which will assure Japan not only her independence but an opportunity to stand well in the world, or to say the least to have the respect of nations. While Japan has been criticised most severely by the Powers for the manner in which she has treated China, yet, when Manchuria is developed, and there are scenes of prosperity and progress on all sides in that vast territory, the world will forget her unsavoury work just as it has forgotten the most detestable manner in which the independence of Korea was wrung from the Koreans.

One good deed hides a multitude of sins, and Japan knows this well. She seizes the opportunity of gaining new territories by underhanded means, and at once sets to work to develop the territory so secured. It is surprising to see the way in which the Japanese have developed both Korea and Manchuria. The foreigner who travels through these countries never fails to remark upon the excellent manner in which things have been done. It is what is done that counts and not what is said.

China has in her foreign policy talked herself to death. She has time and again stated to the Powers that this or that would be done, and nothing has been done. Many has been the time that she has promised to reform her judiciary, or at least create one, but so far no progress has been made. Even the enlightened Liang Chi-Chiao upon being made Minister of Justice did nothing more than to bring back into existence corporal punishment. China has pledged over and over again to reform her taxes and place them upon a uniform and workable basis, but nothing has been done. The most recent instance in tax "reform" was made by the hands of the present Minister of Finance when he levied a tax upon goods carried on the Tientsin-Pukow Railway that amounted to more than the cost of transportation, thereby driving the merchants to use the Tsinanfu-Tsingtau line, now under the control of the Japanese.

In other words the time has come when China must act and stop talking. The present movement for the restoration of monarchical rule is calculated by many to mean that China will now try to do something, but the persistent policy that China has used of trying to deceive foreign nations is not the foreign policy that will in any wise tend to build up China.

The foreign policy in the past has been used to block, checkmate, and deceive the nations. When any one foreign nation failed to be blocked, checkmated or deceived then the one remaining policy employed was to whine like a whipped child. This whining policy is now beginning to tire the world. When the Twenty-One Demands were presented China at once started whining. She wanted the world to sympathise with a big lazy child that was being beaten over the head with a stick by a child much smaller yet far more active and alert. The world had no sympathy with China when intervention was given at this crisis, but it did not want Japan to do all the beating alone. If China is going to be done away with as a nation it is the desire of the Powers to wait until the war is over in order that they might all have a chance. But if the big lazy China would in the meantime stop whining and do something the world would be as well satisfied though on the other hand a whipping such as was administered by Japan would be the policy that all would use.

Blocking, checkmating, deceiving, whining, should all be discarded. They are useless. It is impossible to continue this policy any longer, and China should once and for all make up her mind that she is going to *do* something. All that the Powers want is trade on a basis of equal opportunity; and they intend to have what they want. No foreign policy but an open door policy will save China from the hands of foreign nations. This open door policy must come into effect at once, and on the day that it is announced it will be found that only one nation in the world will be disgruntled, and that nation will be China's neighbor—Japan.

Foreign trade is so interminably mixed up with China's trade development that it is wise for China to determine upon a commercial and industrial policy that will not only prevent foreign control of China, but will accept the assistance of foreign enterprise on behalf of the nation. As has been stated above the future of China is dependent upon the manner in which China conducts her foreign relations, and since the various Powers want only trade then the matter of trade is the one important consideration on the part of China. A policy can be developed that will save China a great deal of the difficulty that she now experiences. In taking up this question of a commercial and industrial policy we will use the present Ministry of Agriculture and Commerce as an example of what can be done to create such a policy.

The Chinese Government has never given sufficient attention to its own internal state of affairs. Up to date all work carried on in an enlightened manner in regard to the thorough investigation of commercial and industrial possibilities has been done by the foreigner, and little or nothing has ever been done by the Chinese. In nearly every branch of commerce and industry the various nations have had their Commercial Attaches studying the condition of trade development, and these officials have been ably assisted by their fellow nationals in business and official life scattered throughout China. In looking over the work already done we see that the face only has been touched, and whatever knowledge has been collected has been used in the interests of the foreign trader.

It is necessary, therefore, that the Government set to work immediately and systematically to study China's own commercial

problems. Up to date everything attempted by the Chinese has been done in a most slipshod manner, and for that reason nothing has been accomplished worthy of note.

The Chinese Government has now devolving upon itself the duty of assisting the merchants and the people to understand modern business organisation. It is the duty of the Government, too, to solve the problems of the merchants for them as much as possible. The Chinese have to learn thoroughness in their methods. It is only in that way that any proposal of value will be carried through.

The Government should annually expend some ten millions of dollars, at least, in the employment of competent foreigners and Chinese really to undertake the work of investigating into China's commercial and industrial possibilities. The result would be worth far more to them in the work of building up a stable Government than the same amount expended upon the army or navy. It must be kept in mind that the general complaint is that China is fast coming under foreign control. If that is so it is merely because the Chinese have not and will not undertake the work of studying their own country in such a way that the people will be able to derive sufficient encouragement and knowledge to handle their own commerce and industry. The nation should at once look into this matter of working out its own problems. The commerce and industry of China can never advance under Chinese control until the Chinese understand the meaning of organisation.

Once the Chinese study and understand what they have in their own land they will have to organise, to develop and control it. At present the Chinese have no real knowledge of what they possess. The average foreigner coming to China to invest capital is compelled to formulate and advance a commercial or industrial proposition to the Chinese, for as a rule they do not know the possibilities that exist for such a proposition. It invariably follows that the foreigner undertakes the development of any accepted scheme simply because there are no Chinese trained to handle it.

Foreign control of Chinese commerce and industry will increase daily until the time arrives when the Chinese learn to appreciate their own opportunities and take advantage of them. The foreigner intends to come into China for trade, and the Chinese will have to accept him. The only manner, therefore, in which the Government can avoid control is by a very efficient study of commercial and industrial opportunities, and by training men to undertake to exploit them.

The Ministry of Commerce should have, at as early a date as possible, sufficient sums of money put at its disposal really to undertake the work of studying the many and varied opportunities. Organisation and its methods will have to be understood and put into practice in Peking before Peking can tell the people what to do. The present organisation of the various Ministries is not such as would warrant the confidence of any business man. Useless men and more than useless offices will have to be done away with before Peking can persuade the Chinese people that the Government knows what it is talking about. The Government will have to put into practice what it teaches before any one will follow. There is not a man on the street but who knows that the Boards of Peking are made up of men who to all intents and purposes possess no special ability for the offices they hold.

The Government is continually complaining of the foreigner taking advantage of China. This is an incorrect interpretation to place upon foreign activity. What the Chinese must realise is that the foreigner is merely taking advantage of the opportunities that the Chinese throw away, or are trying to keep any one from developing. As stated above this cannot continue, for the foreigner will always control if the Chinese continue to sleep upon the job. The fault is with the Chinese and not with the foreigner.

It has been pointed out before that the Chinese cannot hope to develop their country alone, but there is a certainty that they can develop it without losing their sovereignty if they will only seek the aid of the European or American in studying the commercial and industrial problems of China in a modern way. The duty of the Government is clear as regards the business man. The practical characteristics of the Chinese business man to date have made him wary of the good intentions of the central authorities, and this feeling will only be overcome by an actual accomplishment of the many things the Government advocates. Actions speak louder than words, and the poor Chinese have had no end of words, kind and otherwise, from their high authorities, but rarely have they had that sympathy, support, and protection from the Government that is so necessary in the proper building up of business.

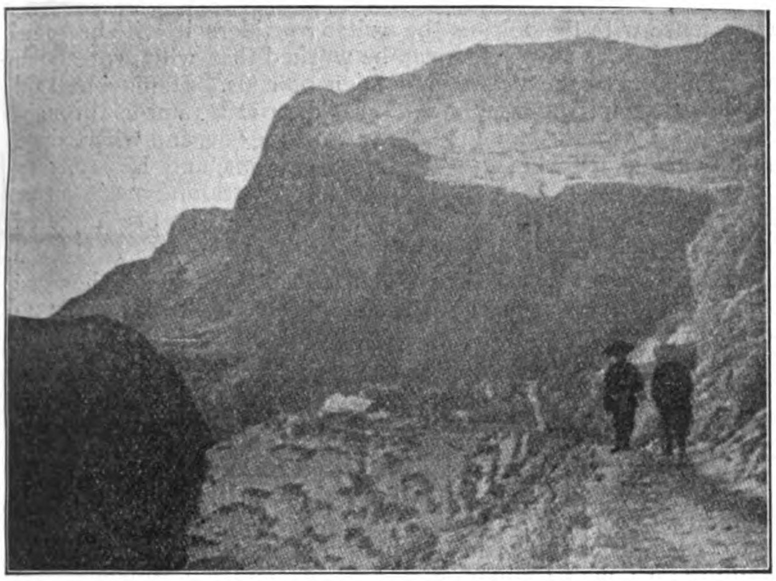
The Government's present persistent policy of *talking* and not *acting* is simply driving the Chinese people to the foreigner for aid. The Chinese with money is afraid to invest in a purely Chinese organisation, for he is doubtful as to what the Government will do to him when he begins to benefit from a profitable concern. It may be that a tax will be added that will kill the concern, and lose to him his invested capital. It may be that the Government, seeing the business a paying one, will give one or two high officials a monopoly. The monopoly controlled by nothing but greed will swallow up the small concern. In other words the Government is responsible for the fact that there are something like eighty millions of taels of Chinese money belonging to Chinese lying idle in the banks of the various treaty ports, and also for the fact that the Chinese yearly invest millions of money in concerns owned and controlled by foreigners.

The policy of the Government to date has been one of inviting the foreigner to take control of trade and territory. It has been the Government that has been driving the people to take refuge under foreign flags. It is the Government alone that can change all of this, and it should be done immediately. No more Mandates need be issued in regard to the development of home industry beyond those concerning the appointment of competent men to office.

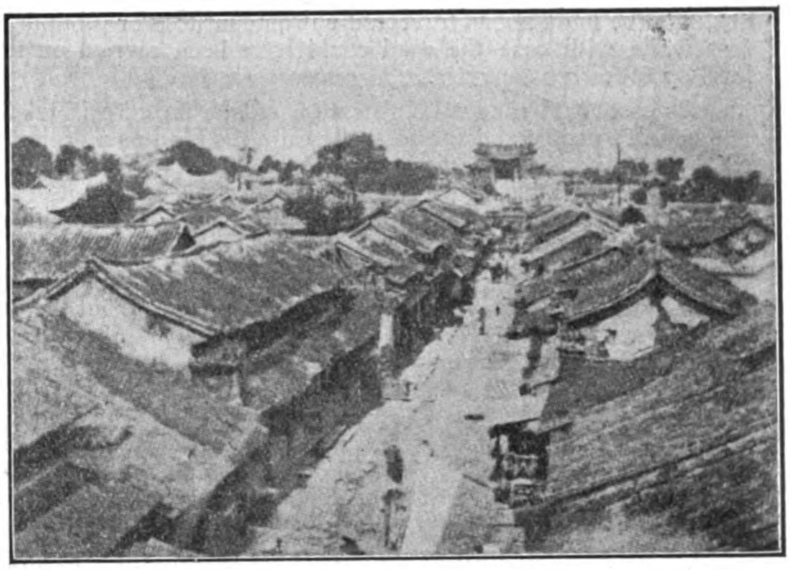
The foreign relations of China are based upon trade, and trade development in China by Chinese is the only solution to the increasingly vexatious problem of how to handle the foreigner. The foreigner will profit far more than he does now when the Chinese take care of their own trade. As it is, comparatively but a few foreign merchants trade here, though as soon as China has reached the point where she is affording her own people the necessary encouragement by example and by the enforcement of protecting laws, then and only then will the foreigner enjoy the privilege of remunerative business on a large scale.

The army can police China, but not in a hundred years under present conditions can it be of sufficient strength to defend China against a foreign enemy. The little talk already circulating in Peking with regard to the Model Army has evoked quite a good deal of criticism from the Japanese Press. The Japanese do not intend to let China build up an army of any force, and this idea may as well be understood. It is for China to build a a model army of sufficient size to take care of her own country internally. Two hundred thousand men well trained could do this. The money now expended upon the upkeep of four to six hundred thousand soldiers could be easily turned to more practical purposes. When China begins to organise her own trade the world will then begin to appreciate the gift of a free market unhampered by overtaxation and official checkmating. The world will then help China to preserve her national independence, but otherwise there need be no hope for assistance upon any other terms than the complete control of China by foreigners.

In technical training, business management, and financial system the Chinese will have to seek the aid of foreign teachers. The foreigner is essential to further development of a free and independent China. The Government can solve the many complex and menacing problems now confronting the Waichiaopu, Tsaitsungpu and Chiaotungpu by undertaking the development of her commerce and industry.



MOUNTAIN PASS IN YUNNAN



MAIN STREET OF TALIFU, YUNNAN

THE MINERAL AREA OF WESTERN CHINA

[BY ARTHUR J. MOORE-BENNET]

At a time when the new mineral code of China which allows of foreign participation in mining is being brought into force, some analysis of the main western mineral field may not be out of place, and whilst the following notes on the native workings and deposits are not intended as a scientific treatise, they may be of interest to those who are interested in the better development of China's greatest potential wealth.

The area examined between 1906 and 1913 comprised that lying between the 22nd and 29th parallels of north latitude and the 97th and 106th meridians of east longitude. That China contains practically every mineral necessary for a great country's economic development is generally known, but the reason why she has to import a large percentage of her coinage, as well as industrial metals, whilst her own deposits are practically untouched is not so generally known.

The chief causes of this condition lay in (1) the ownership of land and mining rights, (2) ignorance of the natives in mining and smelting, (3) lack of transportation and roads, (4) the corruption of the petty local officials, the "squeeze" system, and mal-administration generally. In the area under review, 90 per cent of the people are members of various tribes that inhabit this borderland of the Mongol and the Aryan races and the remainder are Chinese who, sent across as officials, have intermarried with the tribes and own more than 75 per cent of the land they administered.

Owing to the mountainous nature of the country, difficulty of transport, poor roads, and the fact that a very small fraction of the people own the rice and cereal producing land, great power is wielded by the landlords, who as a rule besides owning the land, own most of the mule and pony caravans necessary to bring food in and take metal and merchandise out of the hinterland to the railways and ports.

The landowners, besides holding the land, claim possession of all the mineral found in their holdings, and although in some instances they pay a licence yearly to the provincial government, to work their claims, in every other respect they rule the country independently of any one except their own neighbours.

The workers in the mines are usually tribesmen, who own little if any rice or food producing land, so that to keep life within them they must either work at whatever task the landlord gives them, and at whatever rate of pay he thinks fit, or starve.

As a rule (with the single exception of Kochiu) the workers are in debt to the landlords from their birth to their death, and to all intents and purposes are slaves with no spirit of emulation to do more than was done by their forefathers and with no stake in the working to urge them on.

The native's idea of "mining" is to find an outcrop of any mineral and follow the load or seam down at whatever angle the dip may be until he strikes water, when working is abandoned, and a fresh outcrop sought, where the process is repeated. Hence the area is full of abandoned workings, twisting their serpentine way into the hills, only to stop on the first inrush of water that cannot be handled by the little hand buckets of the children, who as they have to crawl on hands and knees for perhaps fifty yards, down a hole usually less than 4 feet square that turns at right angles and doubles back on itself, can cope with but little. As even on the summits of hills ten and twelve thousand feet high springs are met with frequently, it will be understood that the amount of work done for the metal won is enormous, and also that the real deposits are seldom if ever reached. No pump can deal with water under these conditions, and until the people can be educated into the rudiments of mining as we understand it, little can be done to improve conditions.

Another reason why the area cannot be developed is the lack of roads. Little of this part of the world is flat, probably not 5 per cent, the remainder being crisscrossed with ranges running in all directions, shutting off valleys from any but the most distressing forms of communication, rendering prices of food stuffs absurdly cheap in the valleys and equally high in the mountain tracts. In many parts of Yunnan and western Szechwan twenty miles constitutes a hard day's march of from ten to fifteen hours, and in the rainy season ten miles will frequently take the skin off every mule' sback in a caravan. On the main road from Tengyueh to Talifu the road crossing the Mekong-Salween dividing range drops more than 3,000 feet vertically in less than a mile horizontally, and in the north and northwest of the province passes more than 16,000 feet above sea level are by no means uncommon.

The Yunnan idea of road construction is to set every sharp pointed or smoothly polished cobble stone that can be found into cement to make a track about seven feet wide, which is carried as straight as possible to its destination regardless of what the nature of the country may be, so that frequently in a distance of

one mile the undulations traversed will amount to 8 or 9 hundred feet while with care the road could have been carried on the level by following contours.

As no central road administration exists, no care is taken, and country people and farmers often use the road as a drainage canal where years of use has sunk it below the level of the fields, and every stray man or woman who requires a few stones for making a camp stove or repairing a wall invariably takes them out of the road.

Of late great efforts have been made by the different foreign engineers in the country to impress upon the government the use of tractor roads such as those that exist in Mayala, in California, in Australia and Burma, and certain offers were made to the government to employ criminals in making such roads instead of executing them. But so far nothing has been done. As such roads can be built and equipped by forced labour for less than $5,000 per mile, without the aid of expensive foreign engineers, it was thought that this might recommend itself to the country people, but apparently they prefer the ancient method.

Of the existing railways approaching or entering the area, the Yunnan-Tonking road, owing to the lightness of its bridges, the sharpness of its curves, and its general alignments, is debarred from ever acting as a mineral line, and owing to a large percentage of its length being built on sliding shales and disintegrating rock hill-sides, it will be many years before it can hope to be open the whole year round, owing to slides, wash-outs, and floods staying traffic during the rainy season. In regard to the Lashio-Mandalay-Rangoon line, the steepness of its grades in the Mandalay-Mamyo section, where the line ascends the eastern wall of the Irrawaddi watershed in a five legged switchback with 4 per cent grades, necessitating double ended engines, and train weights not exceeding 100 tons, and the length of the haul to a seaport, will effectively exclude the line from ever acting as a heavy mineral road.

Of the projected railways, the French line from Yunnanfu via Chuchingfu to Lopingchow and from thence to Singyifu, Fengyi, Nanningfu and Yamchow, even if it is ever built, which is open to grave doubt, will be too long to act as a really efficient mineral line, and its meter gauge will debar it from being linked up with China's main systems, and from acting for heavy loads with cheap freights. The distance as the crow flies from Yunnanfu to Yamchow is about 430 miles and along the projected route it is over 780 miles.

The northern line from Yunnanfu to Suifu, owing to the fact that the Yangtze is not navigable at that point, and that the line will be exceedingly costly to build and work, cannot be looked to to solve the problem, and the only line that could really help would be one from the tin district of Mengtzu or Linanfu directly east to Wuchow, going as direct as the ground would permit, with grades of say 2 per cent. It is a distance as the crow flies of 496 miles, or on the easiest line that can be had, about 643 miles. Such a line properly worked on the most approved modern principles would halve the present cost of transportation in and out of the area, and would allow a continuous service being maintained at all seasons. Selected feeder lines of tractor roads at a small cost would complete a system that would effectively give the area free access to the sea at a cost which would allow the smallest miners to work profitably.

Lastly the pernicious squeeze system whereby every official makes all he can out of every one, where every petty Chou, and Ting and Hsien has its own likin station placed on the road in such a way that it is impossible to avoid going in one side of the station and out the other, where the rice and fuel going into a mineral area are taxed to the uttermost cash they will bear, and the minerals or metals coming out pay taxes in kind not only to the likin station but to the individual yamen runners who collect the tolls.

Provided China can eradicate the squeeze, can get some kind of road administration working, and will seriously educate her mining population in the most practical details of their craft, there is no reason why she should not export copper, silver and gold instead of importing them, but from seven years' intimate experience with the officials the writer considers it will be some centuries before any system can be worked that will protect the workers against the village and town officials. It may be said here that the mining population of the district is famous throughout Burma as a thrifty, clever, hardworking one, and where these men have equal chances, as they do in Burma and Malay, they turn out work equal to that of any white miners, and are as a rule more dependable than any of the other miners who are imported into these countries.

Wages generally throughout the district are cheap, the usual wage paid by Europeans for Chinese miners in Burma being 40 cents per day of 12 hours, while muckers get six dollars per month. Carpenters and mine timberers get 35 to 40 cents per day, but usually work on piece work. Carpenters, stone masons, timberers, and miners seldom if ever get six dollars per month when working in their own homes, and common labour usually less. In the salt workings north of Chuchingfu where some enquiries have been made into the cost of native labour it was found that coolies were paid at the rate of one picul of rice and 1,000 cash per month, and for this sum the coolie's whole family had to work, whilst miners, well drawers, and salt boilers seldom obtained more than their rice and 1,500 cash per month. In the copper mines in the Tali region, coolies and miners alike do not get more than 15 cents per day, and this region is a dear one on account of the limited rice area available. In Kochiu alone do miners demand and receive good pay, but this is also traceable to the high price of food stuffs and to the fact that the people from this corner of Yunnan are more excitable and hot tempered than the northern people.

Of all the minerals present, the most widely distributed is coal, closely followed by copper, silver lead (galena), iron, spelter (zinc), tin, antimony, bismuth, gold, mica, asbestos, orpiment, realgar, nickel, graphite, sulphur, petroleum, salt, alum, marble, limestones (lithographic), gypsum, clays (kaolin and pottery clays), corundum, platinum, and wulframite.

Coal

This mineral is found in the forms of lignite and bituminous nearly all over Yunnan, Szechwan, Kwangtung, and part of Kweichow, except in the S.E. corner of Yunnan, and in the eastern portion of Kweichow. It is worked and used as the chief fuel in Yunnanyi near Talifu, in Pingyhsien, Lopingchow, Yuehchow, Telepa and in all the country bordering between Kweichow and Yunnan, as well as at Makai, Sunglin, Sungshakwan (North of Chuchingfu), Yimen (north of Huilichow), Lichow (north of Ningyuanfu), at Silinghsien in Kwangsi, in the hills to the north and northwest of Poseh, at Napal and all over the northern part or this province. A better quality coal occurs at Takwang, at Shihping, and the surrounding country to Mengtzu, in the Tungchow prefecture and a still harder variety in the field that extends from Koupoutchouen on the Tonking railway 10 miles Northwest of Ilianghsien to Yardze-tarn near Shihtsunghsien.

At Koupoutchouen mining is carried on a fairly large scale, the output being carried on mules and coolies to the French Railroad 14 miles south of the mine where the railway takes about 6,000 tons per annum, and about 3,000 tons per annum is sold privately in Yunnanfu, distance by rail 55 kilometers. The average price paid at the railroad for this coal is $4.67 per ton, freight from the mines costing $3.25 per ton. The French railway authorities have tried to arrange on several occasions to build a cableway into the mines from the railway, but the suspicions of the country folk who fear the French political designs have prevented anything being done.

Coal from this mine also is taken down the railway to Pichichai, and there shipped in bags to Kochiu tin refinery on mules. At Shihshan or West Mountain, opposite the Yunnan lake, coal is also found and all down the valley of Yunnan lake coal outcrops are numerous. South as far as Sinsingchow and Siaohsien, outcrops can be located. At Yunlungchow, in western Yunnan, anthracite is found, but so far as is known is not worked to any extent, and hard coal is said to be present on the range that divides the Salween from the Mekong in Latitude 23 degrees to 25 degrees north.

The only portion of Yunnan in which coal is not found is the extreme Southeast corner. Elsewhere in Szechwan, Kweichow, and Yunnan it is impossible to travel 50 miles in any direction without finding either coal outcrops or workings, the bulk of this being bituminous, and lignite. At Sinsingchow, (lat. 24.20 N. long. 102.24 E.) there is a stretch of subterranean burning peat-beds that are very interesting, having been burning for over 26 years according to local authorities.

Coal is worked on the same principle as every other mineral. Outcrops, which are numerous on the hill sides, are worked down to water level and there abandoned. In the case of Koupoutchouen the coal occurring at some distance above water level, permits of rather deeper workings than are to be found elsewhere, but in every case where coal has been examined at lower depths than Chinese methods permit, the quality seems good and the calorific value much improved. The price varies from over a dollar and a quarter a ton down to as low as 60 cents per ton at the mine, and coke sells at $7.50 per ton at Iliang. It costs only $3.80 at Shihtsunghsien Coal occurs, but is not worked, at many places in Kwangtung, especially near the West River delta within 100 miles of Canton City.

Copper

The copper deposits of Yunnan, have yielded in the past practically all the copper required for currency and other purposes in China and Burma, and up till the Mohammedan rebellion of 1870 the yearly yield is said to have been 100,000 piculs annually,

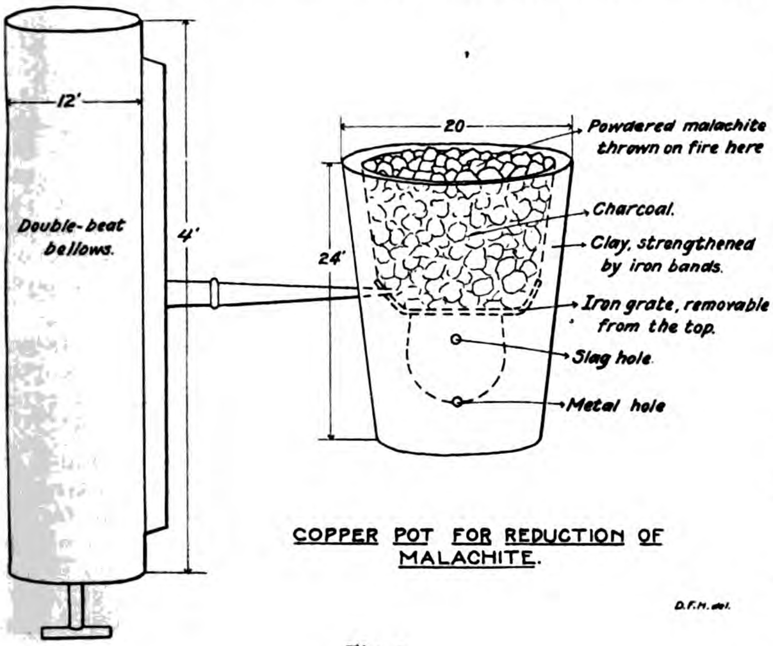


Fig. 1

the bulk of which has come from the Malipa and Tungchwang workings. The oldest known workings are those of Malipa, in the Shan State of Hswenli, of Taotsutsai to the North of the Sino-Burma frontier. The Tawnio and Taotsutsai workings as carried on to-day, consist of alluvial workings in the beds of the small creeks where native copper in thin laminae and filiform places are found, and (2), mining for malachite, and azurite, which are the only two ores smelted, the pyrites and sulphides, although more abundant, being discarded on account of their refractory qualities.

These mines are usually worked by a family, the father and elder male children being employed in winning the ore, the smaller children in laboriously carrying the spoil up the burrow, in small cloth baskets, the mother and elder female children in timbering the mine, and converting wood into charcoal, (coal not being used in these mines for smelting) and the old folks in crushing the ores, and in smelting.

Malachite not being found in massive formation, but as a thin laminae accompanying black ores, an enormous amount of spoil has to be mined to get a relatively small amount of malachite and azurite, and though pyrites have been found in veins nearly 2 feet thick, these strangely enough are not recognized by the miners as being an ore of copper.

The method of smelting is extremely primitive. It consists of grinding the malachite to powder in iron mortars, then gently heating the powder in an open fire, then cooling and washing the same, after which the powder is thrown a handful at a time on the surface of a charcoal fire, in an ordinary clay pot, (See Fig. I) divided in its height by a grate, fine enough to keep the charcoal from falling, and coarse enough to allow the molten metal to percolate into the lower receptacle. An ordinary Chinese box-bellows is connected by a clay tuyere to the fire, and after about fifty pounds of powdered ore has been thrown on the fire, a spigot closing the bottom receptacle beneath the fire is opened, and a small quantity of metal withdrawn and examined.

The workers judge by its appearance whether to continue the fire or to close down. If the latter, the fire and grate are withdrawn, the metal and slag stirred from the top with a piece of green willow (similar to the process known as "poling" in Europe,) and the slag poured off, the metal being allowed to cool in the bottom of the grate, after repeated skimmings. On analysis this metal has been found to contain as under:—

Copper	93.4 per cent.
Silver	26 oz. to the ton.
Gold	00.4532 oz. per ton.
Tin	00.134 per cent.
Iron	00 567 per cent.

The cost of producing a ton of the metal in the native manner has been found to be £57.14.3. and cartage on mules to the nearest railway (Lanhio) 135 miles to be £7.15.0. but by putting in a shaft, and side workings, using a locally made blast and calcining furnace, connected with a waterdriven fan, all of local manufacture, it was found possible to smelt the sulphides, and get a ton of finished metal for rather less than £35 plus the cost of the flux (lime) which had to be imported. At this stage however working was stopped by the Yunnan government.

Near the Burma boundary an old working exists where there is a dump of pyrites and sulphides containing many thousands of tons, and from the signs it would appear that malachite must have existed in masses here with native copper in similar formation. In many places in Yunnan carved masses of malachite exist as ornaments, all of which are said to come from the Malipa and Taotsutsai working.

The Tungchwan workings employ the same methods, except in one of the mines and smelters, where boilers were carried in from Yunnanfu at great cost of time and money, and a blower plant and small blast furnace erected. The ores mined and smelted here are malachite, azurite, red oxide (cuprite), black oxide (tenorite), copper glance (chalcocite), and pyrites (chalcopyrite), although native copper is found in masses similar in many respects to the Lake Michigan copper deposits.

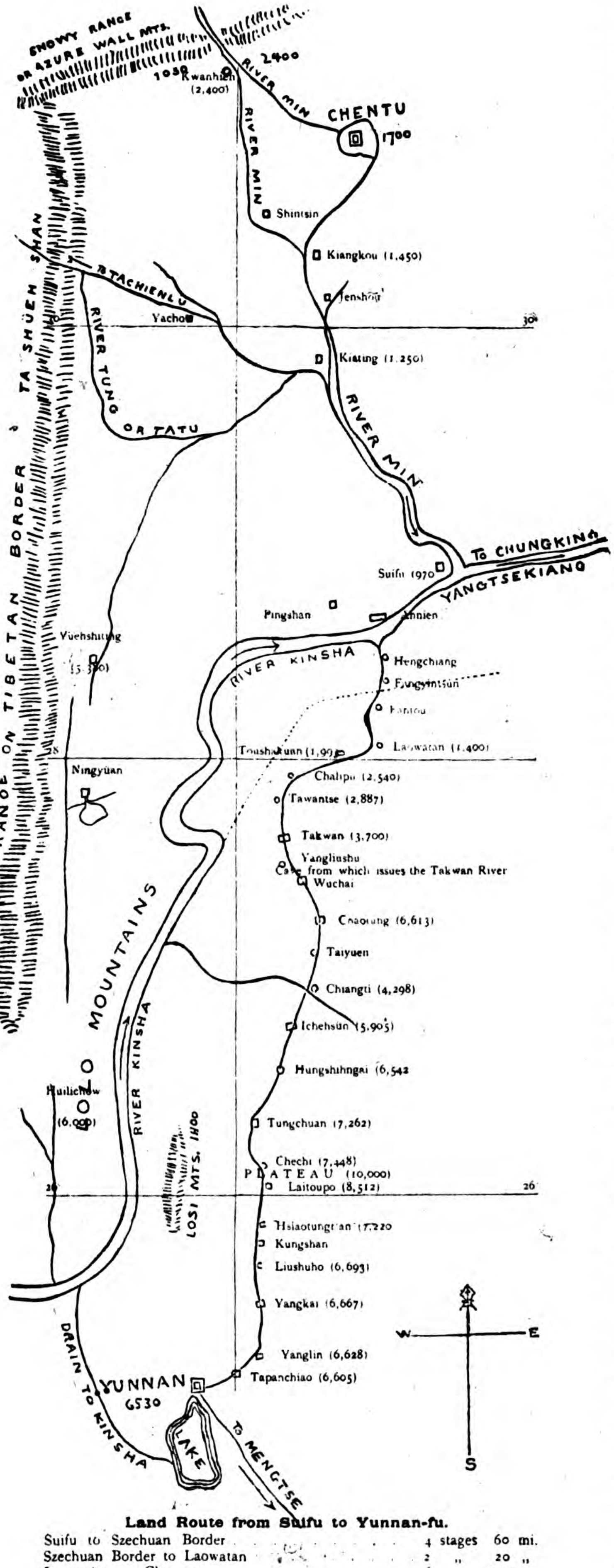
All the copper examined here seems to contain silver in varying quantity, some specimens going as high as 43.65 oz. per ton, though none examined had less than 7 oz. to the ton, and gold was found in 7 out of 9 specimens assayed.

A considerable quantity of grey copper (tetrahedrite) is mined, as its contents of zinc make it valuable for that metal alone, but although the chief ore found in this region seems to be black ore, this for some unknown reason is not used to any extent, except as a mixing agent with powdered oxides, in the ordinary small furnaces.

The output from Tungchwan in 1908 was over 15,000 piculs, all of which was used either by the provincial mint, or else sent to Peking for the Imperial mints. Since the revolution, however, the output has dropped, and last year fell as low as 7,000 piculs, but the output of zinc from the same region has with the advent of the railway to Yunnanfu risen from 231 piculs in 1909 to over 12,500 piculs last year. (1913)

As the provincial government requires more than the market price in London for the Tungchwan copper at the mines, it is impossible to make trial shipments, but on assay it would appear that the mines would be valuable if only for their silver content alone.

At the present time a condition almost approaching anarchy exists owing to the revolution having placed new mine directors not approved of by the local people at the head of affairs, and as



Land Route from Suifu to Yunnan-fu.

Suifu to Szechuan Border	4	stages	60	mi.
Szechuan Border to Laowatan	2	,,	20	,,
Laowat'an to Chaotung	6	,,	132	,,
Chaotung to Tungchuan	5	,,	107	,,
Tungchuan to Yunnan-seng	7	,,	152	,,
	24	stages	471	mi.

10 mi.

Tungchwan is 146 miles by road from the capital and railhead over one of the worst main roads in China, it is not likely that any great improvements will be made, until the Suifu-Yunnanfu line is built, which line as surveyed, will pass through the coal field of Ta Mer Di, 16 miles east of the main copper and spelter mining area. Last year a German house surveyed the mines with a view of supplying machinery, etc., but the Tonking transit dues were so formidable that the firm relinquished the idea.

The next mines of any importance are those in the prefectoral district of Talifu, to the N.E. and N.W. of the lake, where the ores mined are oxides and carbonates for the most part, although pyrites in masses in black ore, seem to be the most plentiful ore. The workings here are in the form of galleries running into a hillside, and are rather better worked than any other mines seen in the province.

The product of these mines known technically on the London market as "Chinese rough copper" yields on assay as follows:—

Copper	95.78 per cent
Silver	32.78 oz. per ton.
Gold	00.514 oz. per ton.
Zinc	1.11 per cent.
Iron	00.87 per cent.

The output of these mines which mostly goes to Burma, does not exceed 900 piculs per annum although the area is large enough and rich enough in ores to give at least 100 times this output.

In the prefectoral district of Yungchangfu, the most westerly district of China, copper is worked on the range that forms the western wall of the Mekong River, by the tribesmen. Here malachite and oxides only are worked and the main output of the mines is silver and not copper, though the yield, which is said at one time, about 50 years ago, to have exceeded ten thousand piculs per annum, does not now give 500 piculs. As in the Tali mines the Mohammedan rebellion is given as the reason for the reduced output, and this is most probably correct as throughout this region the country side is covered with the ruins of villages, workings and other signs of a past industrious people.

Other mines at Weiningchow, in Kweichow, and Hweilichow in Szechwan, just across the Yunnan frontier, also work copper oxides, but in neither of these localities does the output either in quantity or quality compare with those already mentioned.

Copper is also worked at Chuchingfu, where the mines to the west and S.W. of the town, yield small quantities of native copper and oxides, but only enough for the local trade carried on in copper pots and pans. At Wuting Chou, most of the copper used in the provincial copper trade in brass and copper domestic ware, is mined, and in Likiangfu there are evidences that large mines must once have been worked, but the output to-day does not exceed 100 piculs per annum.

North of Atuntzu, between this town and Batang, copper is found in filiform and laminae pieces, in all the many small creeks flowing into both sides of the Mekong, and is washed for alluvially, by the villagers, and lumps weighing as much as two and three catties are found imbedded in creek bottoms. This applies also to the Salween west of this point. Both Salween and Mekong tributaries are washed for gold and copper.

Besides the foregoing workings copper outcrops have been noted in practically every prefecture between 98 E. Longitude and 105 E. Longitude and 23 N. and 28 N. Latitude and as a rule wherever copper is to be found in this area, spelter and silver is found either in the same ores, or at no great distance from the copper ores.

So far as can be ascertained, the gross output for 1912 did not exceed 10,000 piculs, but it is hard to get reliable figures owing to the fact that there are at least ten main roads leading into Burma; only two of them have customs houses on them, and a large part of the output goes down the Chaotungfu road into Szechwan and practically none uses the railway as a means of egress.

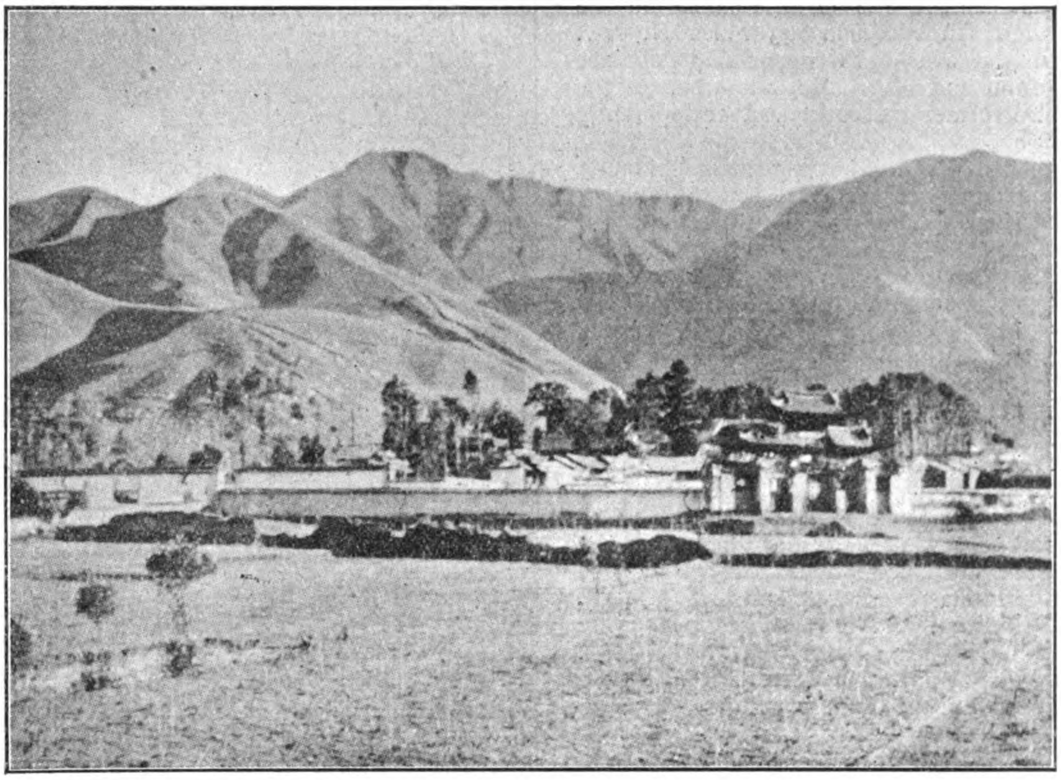
If ever Yunnan gets tractor roads, mining knowledge, and just government the copper area will become a world factor, but until this combination arrives, the output will never supply the

demand. So far as can be ascertained no attempt has ever been made to separate the silver from the copper, so that the loss to the province from this source alone must be considerab'e.

Silver

Silver is the next mineral in the point of wide distribution, and this exists chiefly in the form of argentiferous galena, but sternbergite, stephanite, and other sulphides exist, especially in the southeast and extreme northwest of the area.

The ore most worked is galena, for the silver only, the residue being dumped as slag, owing to the fact that there is no efficient means of transportation. Some of the ancient mines were of great importance as witness the Baudwin mines now within the Burma frontier, but in times past within the China line. The slag from these mines alone was sufficient inducement for the Lake Consuls Company to float a capital of £400,000 in 1908 to deal with it. A railway line was built from the Lashio branch, 43 miles to the N.W. to the old slag dump, and a smelter erected at Mandalay, with a result that over half a million tons of lead slag have been treated at considerable profit.

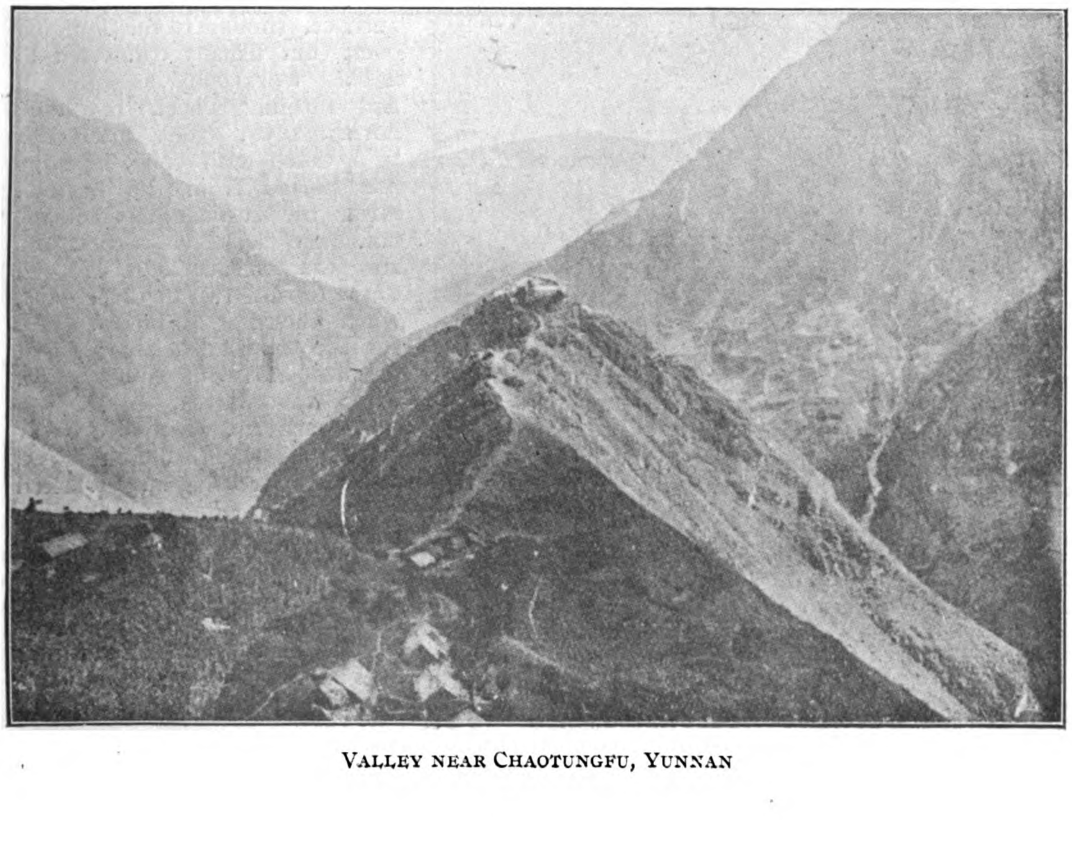


9,000 FOOT HILLS RISING FROM PLAIN NEAR TUNGCHWAN, YUNNAN

At Lopingchow, near the Kweichow frontier, kerargyrite or horn silver, until quite recently used to be mined, and in the region to the north of this town argentiferous mispickel is worked to-day.

In Tungchwan, in the range of hills across the river to the west of the town, silver is mined as galena, and recovered by the desilvering process, the metal being crystalized out, in a method somewhat similar to the Pattison process.

The silver occurs here also in conjunction with zinc, in zincblend, as it does also in Hweilichow in Szechwan, and in conjunction with arsenic and zinc in Tali prefecture, in conjunction with copper in Likiang, but galena is present in every prefectoral district in Yunnan and Western Kweichow, and it is to the galena that the Chinese look for their main supplies.



VALLEY NEAR CHAOTUNGFU, YUNNAN

Silver with zinc cannot be successfully treated by the natives, although they distill the zinc from the ore and leave the silver slag on the dumps.

Galena has been collected at Tali, Yungping, Yungchang, Shunning, Menning, Szemao, Linanfu, Kaihwafu, Kuangnanfu, and elsewhere, and shown on analysis to contain from 7 to 31.8 oz. of silver to the ton, but unless transport can be improved and likin and other extortionate charges removed, these ores can never be worked successfully. It is only because time is of no value that the mines are worked at all, actual trial having shown that to make a pound of silver from the richest mine in the area costs at least nine dollars at the mines.

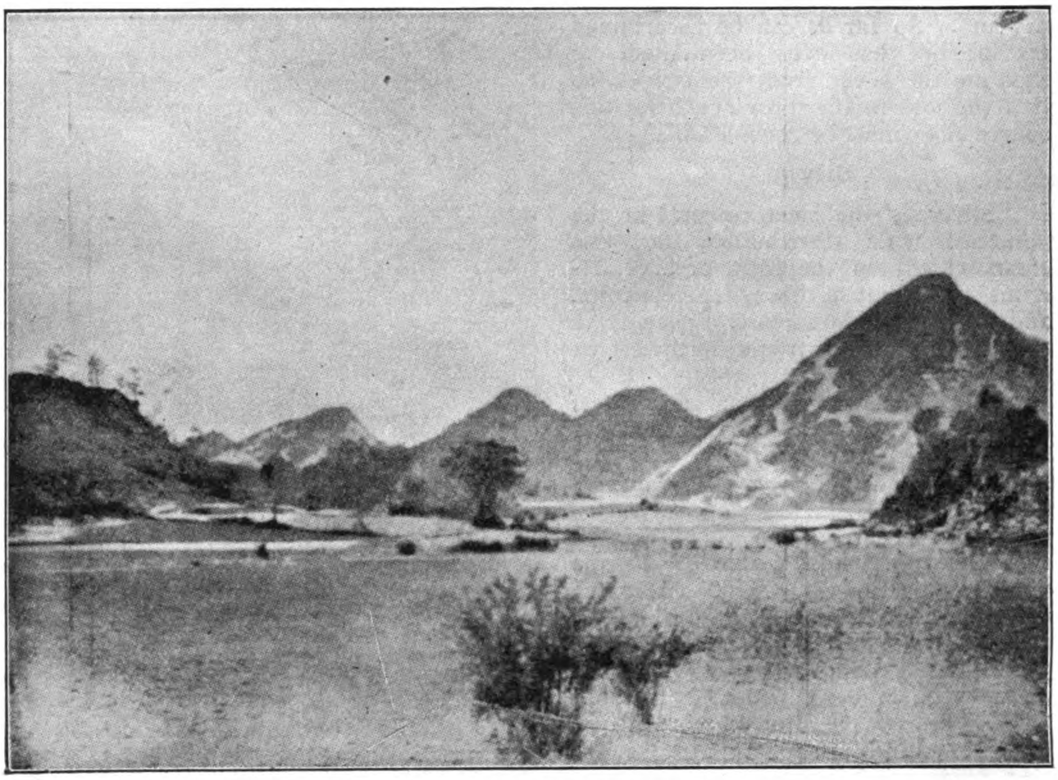
In Kwangsi, Kweichow, and Kuangtung, galena exists over a Y shaped area, with the prong pointing about N.W. and the foot touching the coast near Swatow. At Yungning in Kwangsi, there is said to be a rich mine yielding over 5,000 taels a month, but as no European seems to have noted it, this should be accepted with caution.

Between Weining and Tatingfu in Kweichow, a mine has existed for many years working silver from galena, but its output and methods are unknown. On the extreme western frontier of Yunnan, in latitude 23 on the frontier of the Wa country, silver is so cheap that Indian rupees worth usually from 700 to 770 cash each are only worth 470 to 500. This silver, however, comes from the British side of the line, and is worked by the head hunting Was in their spare time. Mr. La Touche the geological surveyor of India, has found traces of native silver, it is understood, in the tributaries on the West side of the Salween in this region.

Silver is mined also at Talangting (50 miles N.E. of Puerhfu) where the mines are in the hills 22 miles to the N.W. of the town. This deposit has been worked since 1796, but owing to the crude methods employed, fully 25

per cent of the metal remains in the slags. In Weiyuan (45 miles N. Nw. of Puerhfu) both copper and gold are found and silver also, but whereas the two former are worked, silver apparently is not.

In Kwangsi silver occurs abundantly in many places, especially in the gulches of the different tributaries of the West River. It is worked at Kweiping, in the Shan Sha mountains, in the Tien Ping mountains, and in many small workings over the whole of this section. Some of the deposits have been worked for more than 150 years but in no case can the workings be called successful and in no case have the deeper deposits been touched. Silver in the form of argentiferous galena is found in the whole of the western and northwestern part of Kwangtung, and samples taken from the neighborhood of the hills of Yamchow show a contents of 7.80 oz. to the ton. So far as is known there is not, however, any mine in the whole of this or any other western area worked in any but the crudest manner.

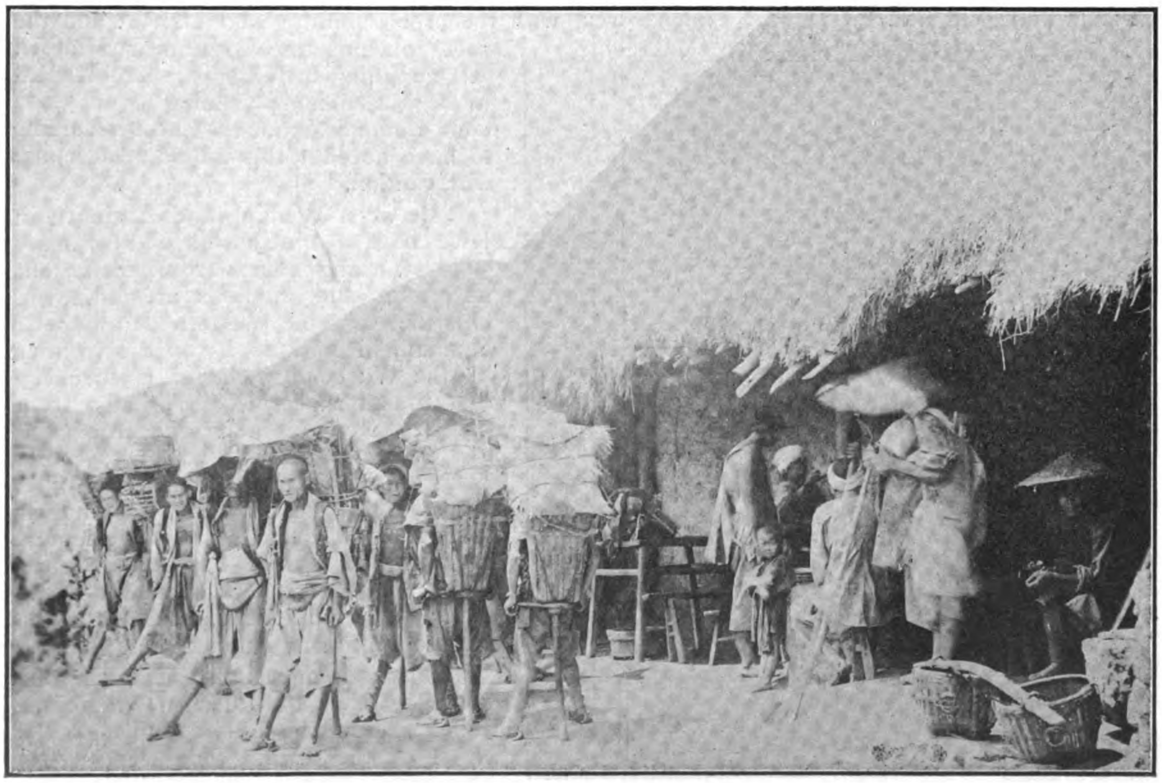


SCENE OR WEINING PLATEAU IN YUNNAN

Iron

Iron exists everywhere South of latitude 28, and west of longitude 105, and in patches both north and east of these limits. Throughout Yunnan it is mined and worked in practically every prefecture. It occurs as magnetite, as hematite, and as blackband, chiefly, but titaniferous iron ore, siderite, and sulphate of iron may be noticed.

At Tunghai (See Fig. 2) south of Yunnanfu, iron is melted in rough blast shaped furnaces, about 30 feet high, built of clay and bricks, in a wooden frame with a wooden charging platform on top, the interior diameter being about 36 inches at the widest part tapering both ways to about 20 inches. As a rule no blast except the natural draft is used, and the furnace being charged with equal layers of coke, and magnetite mixed with coal, is fired from the bottom, the fire being replenished from the top, at intervals for about 50 hours, when the furnace is tapped at the slag level with a pole, the slag examined and if judged of right color, the furnace is allowed to empty itself of slag, a layer of charcoal powdered fine is thrown on the molten metal which is stirred with a pole, and then allowed to cool. The product is an iron of very inferior quality, and is worked by hand into pigs about 10 inches by 4 inches by 2 inches ready for the market. At Weiningchow, where an enormous number of cast iron pots in sizes ranging from 6 inches in diameter by 4 inches deep, up to 40 inches in diameter by 12 inches deep are made, the iron is first cast into pigs, then remelted in a small blast furnace, before it is cast. At Pingyihsien, on the Kweichow frontier, the iron ore is first roasted or calcined in heaps in the open over coke, then dropped in water while hot, crushed fine, and mixed with powdered coal, into balls about 6 inches in diameter. These balls are put into a tall furnace, similar to the Tunghai ones, (but usually connected to a blast worked by a waterfall and turbine wheel, revolving horizontally), the interstices being filled with coke, and the fire started from the bottom. After the furnace has become hot, the blast is turned on, and the furnace kept charged to the top for two or three days, when the slag is tapped, the furnace allowed to cool, and the iron run out into water, which causes it to break into small particles, which are after remelted in small hand furnaces, and before cooling are worked with sledge hammers into marketable ingots.



SALT MARKET OF YUNNAN KWEICHOW FRONTIER

The iron pots are exceedingly finely cast, the thickness of the walls rarely exceeding three-eighths of an inch, and faults even in the largest sizes are rare. Of the articles manufactured, pots are easily first, as caravans with these pots from Weining,

Pingyihsien, and district have been met with as far south and east as Posehting, as far north as Batang, and as far west as Talifu. Plough shares, iron chains, nails, knives, swords, hoes, etc., are manufactured in quantity, the output from Tonghai alone in 1912 being 11,000 piculs.

As a rule the iron manufactured is fine in grain, but exceedingly soft. Coal and lime are usually found with iron throughout the area, and as all are abundant, roads and good government alone are required to make the industry successful.

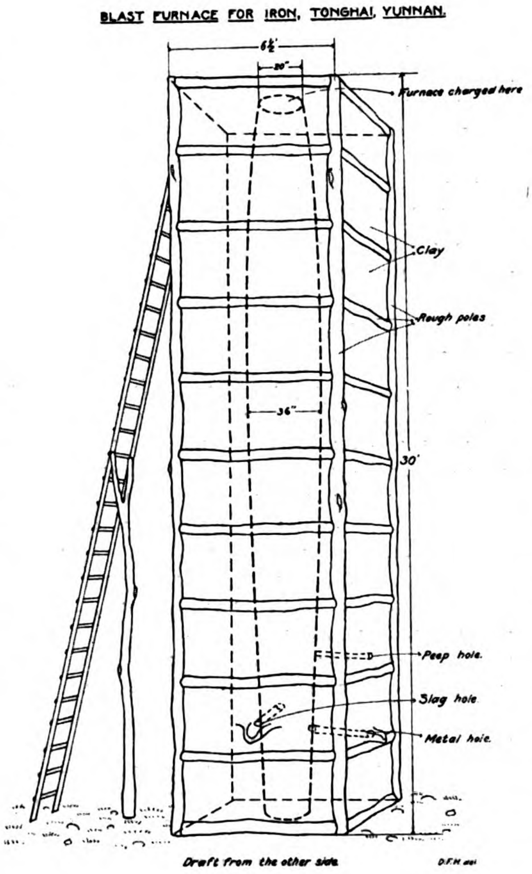


Fig. 2

Iron is also found and worked in the Mingkwang valley north of the treaty port of Tengyuen in western Yunnan, the manufactured iron being cast into pots which are sold in the surrounding country and exported to Burma.

Before the revolution there was some talk of erecting blast furnaces and rolling mills on the shores of Yunnanfu lake, but although estimates and plans were gotten out, nothing resulted, nor is likely to result, until China can get more credit than she has to-day.

Spelter

Spelter has been worked in the area for many years, for making the alloy from which cash are manufactured. It was not until 1909 that the railway from Tonking entering Yunnan, allowed the metal to be shipped, and the export as has already been noted rose from 231 piculs to over 12,000 in five years. The largest mine is that at Oyinshan (Silver Hill) near the Kweichow frontier, where the output now reaches about 12 piculs per week. The mineral occurs as calamine, and as blend, the latter predominating, and is mined at the summit of a hill about 6,000 feet above sea level. The ore is first hand picked as free of galena and other foreign matter as possible, broken into small pieces, crushed fine, and then treated in clay retorts, (see Fig. 3). In this method, the crushed ore is mixed with equal parts of fine coal, by weight, and a charge consisting of about 25 to 30 lbs. of the mixture is introduced into a clay retort (Fig. 3 c) some 30 inches long, by 8 inches in diameter at the big end with a shelf projecting in the interior about 6 inches from the top tapering to a point at the closed end. These clay retorts are first roughly shaped and baked in an ordinary pottery furnace, before charging.

The furnaces are from 15 to 60 feet long, and are made of burnt brick and masonry (Fig. 3, a and b) supported by arches, one grate with a separate flue to each 6 retorts, three on a side. Each retort is set in an opening left for it in the crown arches, and the large end projects about 12 inches or more above the layer of ash and clay which is used to lute the retorts in place. Such furnaces contain from 100 up to 270 retorts each, 150 being about the average size.

The retorts being about two-thirds filled with the mixture of coal and ore, are placed in the furnace, and luted up, and the projecting top, covered with a lid of clay, is kept as cool as possible by the insulating layer of ash and clay. Fires are lighted on the grates, the furnace heated gradually without either stack or blast, coal being the fuel employed, until white fumes are seen issuing from the lid of the retorts when fires are withdrawn and the furnace allowed to cool off, after which the distilled metal is collected from the tops of the retorts. As there are no stacks, or other means of drawing off the fumes involved in this process, the workers are said to be usually short lived, three years being about the limit it is possible to continue working.

The rough metal obtained from this method of distillation is again remelted for the separation of zinc oxide, which rises to the surface on remelting and is skimmed off, as long as it forms. After this the metal is cast into roughly rectangular ingots, each weighing about 80 lbs., and marketed.

The road from the mines to the railway, is over 120 miles, over three ranges averaging 7,000 feet, and a nightmare of a trail at any time, it is only possible at all for pack animals during the dry season from November till June. The price obtained at the mines averages $6.00 per picul (£10 per ton), mule freight to the railway costs $3 per picul, export duty $9.00 per ton, French railway freight $44.44 per ton, Tonking customs charges examination 90 cents per ton, which makes a total cost to sea board of £21 per ton, which at the present prices of zinc hardly pays (1914). Spelter or zinc occurs in the following districts; and is worked in most of them as at Oyinshan.

Tungchwan, output about 5,000 piculs yearly.

Minchiu on the Kweichow-Yunnan frontier, output about 500 piculs per year.

Hweilichow in Szechwan, output about 2,000piculs per annum.

Weiningchow in Kweichow, output about 2,500 piculs per annum.

Likiangfu, output about 1,500 piculs per annum.

Besides many places in the Tali, Loping, Sapushan, Malo districts, where the output does not exceed 100 piculs per annum. Of the total quantity produced, about half is exported, the remainder being used in Yunnanfu, Kweilin, Kweiyang, Chengtu, Suifu, for manufacturing cash, and for making "old" bronzes, idols, etc., used to sell to the unwary tourist and others. In Kwangsi, outcrops have been observed of zinc ores at Silin, Paima, Silishui, and near Paiai, but as this section of China is inhabited exclusively by Shans, no workings were seen anywhere.

Outcrops have also been observed in the Wa States, West of Yunnan frontier, so that zinc would appear to be widely distributed in this region, and is nearly always found near copper deposits.

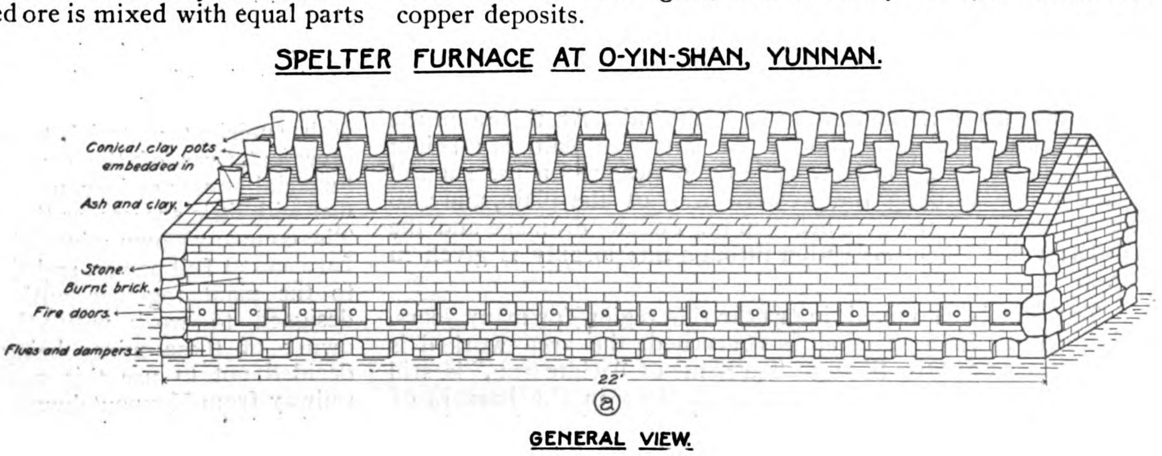


Figure 3 a

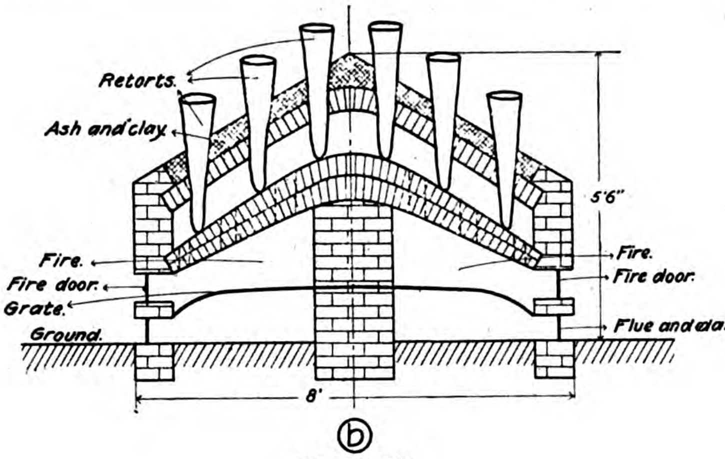


Figure 3 b

Tin

In point of value this metal takes precedence of any found in China to-day. In the year 1912 the total export through the maritime customs was 138,000 piculs valued at £2,700,000, all from the Kochiu mines. These mines are situated on a high bare ridge, at about 5,900 feet above sea level about 20 miles due west of the treaty port of Mengtzu, and about 23 miles west

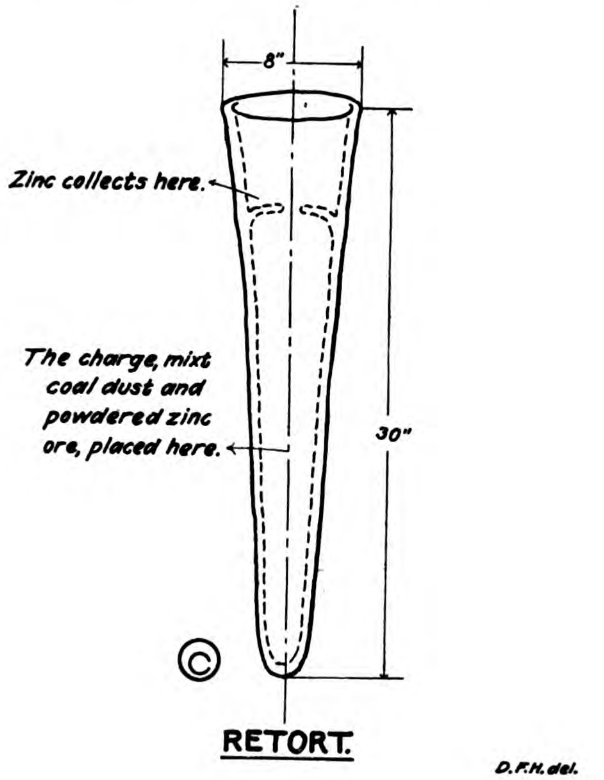


Figure 3 c

of the French railway station of Pichichai. At this point the railway skirts the east wall of the Mengtzu plain, at a height above sea level of 4,760 feet, while the mines are on the summit of the range forming the western wall of the plain, and also forming the height of land between the Padaho drainage and the Red River drainage. A section through this locality is given in Fig. 4.

Tin has been mined in or near this region for many years, and though as far as Yunnan is concerned, the area worked is limited, tin, under the Shan or Tia name of "white iron," is still sold in Chengmai bazaar in Siam, as well as in the bazaars of Mengli, and the southern Shan states, by the tribes who claim to mine and smelt it in the territory south and southwest of the southwest boundary of Yunnan.

Kochiu, which is the name of the town, as well as the mining area, is situated in a small oval valley amidst the hilltops of the range and contains a population of about 40,000 people, ⅞ of whom are engaged in mining and smelting tin. As the range is bare granite for the most part, the region is unproductive, and all food stuffs, fuel, house building material, tools, and all the necessities of life, have to be conveyed from the Mengtzu plain and elsewhere by mule or carts, to the mines, hence prices here are relatively high for this portion of China.

Water also is scarce, for the reason that Kochiu is, as has been explained, on a table-land, which does not offer sufficient catchment area for the amount of water required, and in times of drought it is sometimes necessary to bring water, as well as fuel, from the plains below.

The method of working the mineral is the tributary one. Ground owners, or rather certain of the gentry who claim to own the land, but whose title deeds of ownership are open to grave doubt, grub-stake coolies, giving them rice, water, fuel, etc., in exchange for their labour, and buy the tin so won for a price agreed upon. As these ground holders also own the mule and cart caravans, and control the rice and food markets, the coolies, as may be supposed, are robbed in every possible manner. In 1909 the government of Yunnan in conjunction with certain of the landholders formed a company called the "Yunnan Mutual Tin Trading Co.," the capital of which was one million taels, and the purpose of the company was the buying and erecting of a tin refinery plant to refine fifty tons of standard tin per day. This plant was offered by the representative of a great German House, and was designed by them to deal with the particular conditions that existed at Kochiu, to work by the gas process made from coal taken from the adjacent coal mines of Takwang.

It is understood that the engineers of the selling company, after a close survey of the ground, suggested the advisability of erecting the plant at or near the railway station of Pichichai, bringing the ore to the refinery by means of a wire cable-way. This however did not suit the company, as the majority of its directors were suspicious and fearful of the French authorities, and it was decided to erect the plant 21 miles from the railway, on the summit of the range. Delivery of the plant was made during 1910 and 1911, and large numbers of coolies were used to carry the massive machinery up to the summit site that had been selected. A rough road was made, and trolleys brought in from Hongkong, were used to take up the heavier sections.

It is understood that the sellers in their first agreement agreed to give delivery of the plant at Pichichai, but later the representative of the sellers, finding that it was impossible to foretell exactly what the French transit rate and freight rates would be on the plant, altered the point of delivery to the sea-port of Haiphong, with a result that the Chinese had to pay a freight and transit rate combined of over 50 per cent. of the value of the plant, to the French authorities, for the privilege of using the Tonkin railway.

The plant was erected satisfactorily during 1911 and 1912, the revolution having little effect on the output, indeed the production for 1912 was greater than it had ever been before (138,000 piculs), and smelting and refining operations commenced in 1913.

The company having exhausted its capital in buying and erecting the plant, had no available funds to buy ore or crude tin with, nor could it persuade the smaller holders to provide it with sufficient material to run the furnaces at full power; representatives of the company visited the agents of various financial houses endeavouring to raise the necessary funds, but met with little success, as there was no security to offer lenders. The company's own mines did not yield sufficient ore to run the furnaces at full power, and the trouble of getting sufficient fuel to the plant together with the fact that the furnaces were designed to work with the Takwang coal (owing to the owner of these mines being out of the "ring" it was after decided not to use this coal, but to bring coal 150 miles by railway from Koupoutchwan, the owner of which mines was also a shareholder in the refinery company), while an entirely different coal was used, all tended to prevent the plant being the success that its design and workmanship should have ensured.

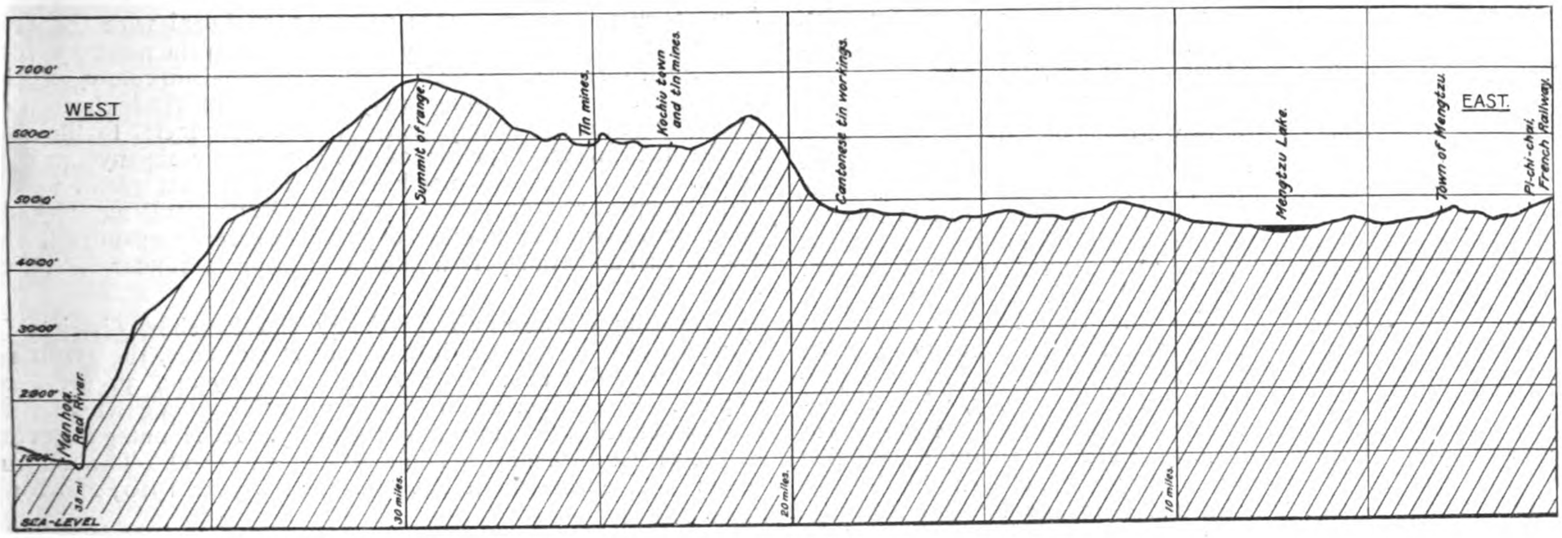


FIGURE 4.—SECTION FROM PICHICHAI THROUGH TIN DISTRICT TO MANHOA

Towards the close of 1913 arrangements were made between the Franco-Russian house of Panoff & Co. and the refinery company, whereby the former advanced the sum of £35,000 to the refinery, which undertook to give the loaners 200 tons of tin, during a certain period, at a firm price, and it is thought that this sum will be sufficient to enable the refinery to show the native smelters the advantages of using the refinery to produce standard ingots in place of the Chinese slab tin, which has to be refined again in Hongkong, and yet again in London before it becomes standard Tin.

In 1911 and 1913, the government of Yunnan seriously considered building a railway from the mines to connect at Pichichai with the French railway. This line was surveyed three times, twice by Mr. Dawley, the engineer-in-chief of the Tengyueh-Yunnanfu-Szechwan railway company, and once during 1913 by Mr. Dobbie, the assistant engineer. As the French railway agreement of October, 1902, gives the French the prior right to build feeder lines connecting with the Tonkin-Yunnan line, the director of that line visited Yunnanfu early in 1912, and offered to build the branch for a cost of two million Mexican dollars. This offer was refused by the Tutuh General Tsai for political reasons, and at the same time a force of native surveyors and engineers was sent to Pichichai, to make the final surveys. Lack of money has so far prevented anything being done, which is perhaps as well in view of the fact that a railway is not in the least required to handle the freight, a tractor road costing one-fifth or less being all that is necessary, as has been pointed out to the authorities again and again by every engineer in their employ.

Various attempts by different foreign firms have been made from time to time, to obtain control of the area, and to work it properly; great distrust against foreigners generally existed at the mines up to the revolution. Contrary to all treaties, foreigners were not permitted to buy either tin or ore, prior to the revolution at Kochiu, and local feeling ran so high in the mining district, that before 1910 it was hardly safe for foreigners to enter the district. This state of thing happily no longer exists, but any attempt on the part of foreigners to work, or own any part of the tin area, would probably result in a series of riots.

Native made tin still predominates. This tin is mined or rather quarried for the most part, by parties of two or more natives, and smelted by them in small open Chinese furnaces, the metal produced containing about 90-92 per cent. tin, the impurities consisting of sulphur, iron, arsenic, copper, and oxides of tungsten, magnesium, etc. This crude tin goes to Hongkong, where a small refinery was erected in 1911 by a German house, and is there refined to 98 per cent. tin, and is sold on that market, as a rule.

Provided that the refinery company can come to some arrangement with these small holders and workers for the refining of the crude tin, and that it is possible to provide cheap and efficient transport for fuel, foodstuffs, etc., inwards and tin ingots outwards, the outlook for the industry is good.

Lack of water, the great problem that still remains to be solved, before the industry can ever assume the importance it deserves, is technically easy of solution, if once the funds are forthcoming, a waterfall on the Manhoa side of the range, on a tributary of the Red River, offering all the power that is required to lift water from that steam to the town and mines, besides giving ample power to afford lighting, and motive power to the suggested cable-way from the Mengtzu plain, the towns of Mengtzu and Kochiu, and surrounding districts.

The production of the area has risen from 68,000 piculs in 1906 to over 140,000 piculs in 1913, according to the figures given in the customs returns, and provided that provision is made for water, transport, and prospecting, there is every reason to believe that the increase will be maintained in the future. At present the tin ingots are carried by mule from Kochiu to the railway station at Pichichai and from there are sent to Hongkong via Haiphong and the Tonking railway, the freight charge on the railway being $45 plus 10 per cent per French ton of 1,000 kilos. In order to conciliate the Chinese government the transit charge on tin using the railway as a means of egress was removed in 1910, hence the freight charge is not excessive considering the value of the material. Prior to 1909 when railway construction brought Mengtzu and Kochiu within less than two days of Haiphong, the tin was shipped by mule to Manhoa, the head of sampan navigation on the Red River, over what is perhaps the worst piece of road in China, conveyed by native boat to Loakai and then taken by river steamer to Haiphong, the whole trip taking nearly a month.

At the present time the fact that standard tin ingots of a purity of 99 per cent cannot be or are not obtained prevents the industry being put on a proper basis, as the tin cannot be sold forward at the top of the market as elsewhere, while the suspicion with which the small holders and workers regard the refinery, prevents ordinary co-operation being used to standardize the output. Great efforts are being made to overcome these difficulties and the establishment of a branch of the Banque D'Indo-Chine at Mengtzu, in November, 1913, has made shipping easier by permitting small shippers to draw against bills of lading in the treaty port, instead of as heretofore having to wait two or three months for the tin to be sold, and for cotton twist equal to its value to be imported.

Four foreigners are employed at Kochiu, mostly Germans in prospect boring, and in the working of the refinery, which is nominally in charge of Mr. Tchung, who was educated as a mining engineer in the University of California.

Since the restriction preventing foreigners buying tin at Kochiu was removed in 1912, several French, German, and Russian firms have bought small lots of tin, but speaking generally

the suspicion of the workers prevents any very active market being formed at Kochiu itself, nor can foreigners ship tin as cheaply as the natives seem to be able to do.

Competent engineers have estimated that the cost of putting a tractor road from the railway to the foot of the mountains, with a connecting cable-way to the mines, capable of handling 100 tons of freight per 10 hours, together with a water raising plant, electric power and light plant, would cost in the neighborhood of £150,000, and to open up the Takwang coal mines and connect the mines by tractor road to the main road would cost another £50,000, or two million dollars (Gold) in all. The company have made various attempts to raise this sum, in Hongkong and Haiphong, during 1912 and 1913. Lack of security, together with the fact that the company will not agree to foreign supervision, prevents Europeans advancing the money, while Singapore Chinese who have been approached find the conditions imposed by the Yunnanese too onerous. It is understood that negotiations are at present in progress between the Banque D'Indo-Chine and the Tin Mutual Company for this loan, but the attitude of the country people towards the French, whose Tonking frontier lies only eighty miles to the South, is against the business.

Tin is also found in the Tungchwan district, and in 1910 the lode was opened up for a considerable distance. In this case the ore is stannite, but is worked as an ore of copper and not as tin, and yields a metal that the Yunnanese term "perhtung," white copper. The amount yielded in 1910 is put at 760 piculs, but since the revolution, and its attendant disorder, no work seems to have been done. East of Ilianghsien "perhtung" is also worked but in very small quantities, and purely for local consumption, as it is in the hills to the west of Fuminghsien and Hweilichow. An assay of the Tungchung metal gave the contents as tin 42.567 per cent, copper 49.7 per cent, sulphur 1.3 per cent, and lead 1.8 per cent. Tin is also said to be found south of Shihpingfu between the plain and the Red River, but no workings exist there to-day.

In Kwangsi tin deposits occur at Fuchwanhsien where they have been worked for at least fifty years. In 1910 the government of the province took up the tin and coal workings at this place, and the yield during that year is said to have been about 84 tons of 98 per cent tin, the yield in 1911 increasing to about 100 tons.

In the Hohsien district tin is worked by crude native methods similar to the Fuchwan process and the total quantity of tin that is exported from Kwangsi via Wuchow seems to be about 210 tons for 1911 in the form of Chinese rough slabs averaging about 95 per cent to 97 per cent tin.

Antimony

Ores of this metal are found widely distributed all through upper Burma, Yunnan, western Szechwan, Kwangsi and Kweichow, but lack of cheap transportation, and its relative low market price prevent it being largely work d. The largest known deposits exist in the northern and southern Shan States and are situated in Hsweni State, in Menglem State, and in Mongsher and Chefang States in the Chinese Shan States. In the West and at Likiangfu, Talifu, Tungchwan, Pingyihsien, Toutang in Yunnan province, it occurs as stibnite, as it does also in the many outcrops that have been observed throughout the Singyifu and Singyihsien districts of Kweichow, and in the high bluffs that form the east and west walls of the Poseh river plain in Kwangsi.

Stibnite is the chief ore occurring, but the sulphides with sulphides of silver are found in certain places, the best known being in the hills to the west of the Mekong on the same parallel as Puerhfu, while with ores of lead, it occurs in many places throughout Yunnan and Kweichow.

It is smelted in many places in Burma and Yunnan by the natives, who use it in small quantities in domestic manufactures, into the form of crude antimony containing about 65 to 70 per cent. antimony, but the only place where the mineral is dealt with commercially is at the French constructed and Chinese owned antimony works at Chihtsun on the Tonking-Yunnan railway just above the treaty port of Mengtzu. These furnaces were erected in 1911 and 1912, and deal with the ores which are found to the east of the refinery. in the most approved form of furnaces, and make pure commercial antimony, but the low market prices prevailing lately together with the high cost of transport of the ore to the furnaces, and of the metal to the sea, render the financial success of the operating company open to doubt. To the west and north of the Poseh river plain, where both transport and fuel are cheap, and labor plentiful, it could probably be worked successfully, but wherever examined, the cost of fuel and transport would be such as to render its value doubtful.

As stibnite it occurs in the Fengyi and Penchow districts in Kwangsi and is smelted in crude blast furnaces, the resulting metal containing about 65 per cent antimony and 30 per cent sulphur. It is exported in this form to Hongkong where it is further refined into commercial antimony. At Nanning the price of the crude antimony is about $13.50 per picul. The output seems to have been about 120 tons for the year 1910; 260 tons 1913.

Bismuth

Outcrops in the form of native bismuth, and ores of bismuth glance have been seen and examined in the prefectural districts of Likiangfu, Kochiu, and Yungchangfu, but it has never been observed that the natives work it, or know its uses and values. It is also said to occur in the hills to the S.W. of Posehting, where it has been prospected for by French mining engineers.

Gold

Gold occurs widely and finely distributed throughout Yunnan, S. W. Szechwan, and both Chinese and British Shan States; in over 700 streams examined during the years 1911 to 1913, gold was found in 430 odd, but in no case was it found in sufficient quantity to pay for working that would necessitate heavy transport charges in crossing the ranges.

So far as is known no quartz or auriferous rocks exist in the region, although various prospectors have vainly tried to trace the source of the alluvial gold found in the Salween, Mekong, Irrawaddi, and Yangtze rivers and it was reported in 1901 that quartz yielding 21 pennyweights had been located in the Wa States to the east of Lashio, but no confirmation of the report exists.

For many hundreds of years, Yunnan and S.W. China generally exchanged gold for jade from the Burmese workings, and native manuscripts state that the gold used for the Rangoon and Mandalay pagodas came from Yunnan for many years.

At present gold is worked successfully by dredging on the upper Irrawaddi River, and in 1904 a Rangoon company was floated to work a tributary of the Salween River, the Namma River, situated about 80 miles east of Lashio near the Yunnan frontier, by dredging. This venture proved unsuccessful owing to the occurrence of huge boulders in the stream bed, that stopped free dredging, and ruined the plant. Gold washing by natives takes place at the following places, but it has been noted that at none of them would it pay to install plant on a large scale. Dayulgomba in Tibet, Nalong, Siento, Chitsung on the Yangtze; Talang; near Tsinning; Mili and Kulu on the Yalung River; Hochuka on the Litang River; Macheng on the head waters of the Twangchang Ho (Pa Da-Ho,) Kiangpan on the Yangpi River north-west of Tali. Nearly every one of the numerous creeks that enter both the east and west sides of the Salween. Mekong and Yangtze Rivers between latitude 26 and latitude 29 North are worked regularly by the tribes between seed time and harvest.

The method usually employed is to dam a portion of the bed of a stream to deflect the water, then work the sand in the bed left exposed, by making a rough flume, from 20 to 50 feet long, collecting the gold by slats, on the bottom of the flume, or sometimes where such can be obtained, large bamboos split down the center are used as a riffle, the gold collecting at the roughness of the interior joint which is purposely left untrimmed. As the gold is most finely divided, more than 50 per cent at least must be lost, as powder gold seems to exist, and in no case has a native been seen who made more than 10 grains per day in any one of the

northern workings. But at Namma, at Laoshan in the Wa States, at Menglung in the Chinese Shan States, and in certain tributaries of the Salween in Hsipaw State, where gold occurs alluvially in fair sized flakes, careful washing in scientifically constructed riffles, has given as high as 3 pennyweights per yard of dirt washed.

Mica

This mineral exists throughout the region under review in small pockets, but is of little commercial value as the largest seen will not split into clear sheets of more than 3 inches square. One sample submitted by the headman of a village near Pingyuanchow in Kweichow, split into sheets of 5 inches, but this is the best that has been observed, and there is some doubt if it really came from the locality.

Asbestos

This is found in the region to the east and southeast of Pingyihsien in Kweichow, and to the east of the town of Padaho in Kwangsi. Its staple is too short to make it valuable, and the supply seems limited. It occurs irregularly in pockets and is sold by natives in the bazaars for 500 cash a cattie, being used in place of cotton for lining the quilted coats worn by the hill people in winter. No regular mining operations exist as the demand is small and purely local. Samples submitted to the London metal exchange brokers, in 1912 were valued at six pence a pound, a price that would not pay transport on the Yunnan railway alone.

Arsenic

Arsenic in the form of orpiment occurs in many places in northwestern Yunnan, the chief mines being in the Tali prefecture near Chaochow, a village to the south of Tali Lake, and in Menghwa, a district about 45 miles south-easterly from Talifu in Mitu, and Wuli and many smaller outcrops throughout this district. As in other mines, the outcrops only are worked, but as these usually occur at some distance above water level on the sides of mountains, greater depth is obtained, with increased output from these deposits, than from most similar deposits in China.

Realgar is found with orpiment in the same mines, but is considered on account of its reddish tinge of less value than orpiment, and in many cases where the red color is pronounced is discarded by the Chinese workers. Small deposits of native arsenic occur in the shistose rocks to the north of the town of Yunnanyi, but these are not worked, the natives apparently not recognising the mineral in this form.

The price obtained at the mines for clear yellow orpiment is taels 4 per 260 pounds, and the cost of carriage of the quantity to the steamers at Bhamo, the nearest port, is taels 8, likin, octrol, etc., amounting to another taels 3, hence the cost at Bhamo, where the total output is shipped, is about £20 per ton.

Chaochow, which may be termed the center of the industry, is some 17 days by road from Bhamo, over the ranges separating the Irrawaddi, the Shweli, the Salween, and the Mekong rivers. The output of the mines is controlled by the number of mules available, by the state of the roads, impassible during the rains between June and December, and by the quantity of cotton twist available at Bhamo for return cargo. The quantity of people engaged in the industry is about 800 and the output was 7,146 piculs in 1909, 8,114 piculs in 1910 and 8,234 piculs in 1911. In the last two years a small quantity has been shipped east to Yunnanfu.

Mercury

In western and northern Yunnan, cinnabar, or sulphide of mercury, is found in the dolomitic sandstones, and limestone breccias, in the beds of creeks and streams entering the Salween, the Mekong, and the Yangtze rivers. In western Kweichow it occurs in the Singyifu region and in Yuan-shanchiang where it is found and mined in black carbonaceous slates alternating with schists and fine grained sandstones. On many streams, cinnabar on account of its high specific gravity is washed for by the natives much as they wash for gold, while in certain tributaries of the Salween, both gold and cinnabar are found in the bottoms of creek beds.

In the S.W. portions of Szechwan, especially those near the Yalung drainage, cinnabar is regularly washed for by the farmers, during the months when crops are not being seeded or taken up, but as both cinnabar and quicksilver are used in the native arts, especially in the form of vermillion, it is difficult to obtain figures giving the annual production, those which are obtainable from the Customs sources being only the quantity exported through treaty ports, representing probably less than 10 per cent. of the actual production.

Owing to the defective furnace arrangements used in smelting the ores it is found that fully one half the mercury is lost in the process. The form of fu nace in general use consists of a small blast-shaped furnace, somewhat like that used for smelting iron, the top of which is arranged to allow the necks of several clay retorts to be inserted. The cinnabar or ores having been placed in the furnace, the smaller grains being moistened and fashioned into balls, together with the fuel, (charcoal for the most part), the fire is started, and the tops of the clay retorts kept as cool as possible. By this method the reduction is effected by the air oxidizing the sulphur, but fully 50 per cent. of the mercury is lost, owing to the retorts not being tight, the furnaces being faulty, and the fuel poor. Some furnaces seen in northern Yunnan, bear the trace of western design, probably being the work of the French fathers. One seen near Yuning in Likiang prefecture consisted of a small shaft, resembling a cupola furnace built of clay, supported by a wooden outer framework, with fireplace at the bottom, on roughly fashioned firebars made of native iron, with an arched roof, containing some twenty openings leading into a reduction chamber immediately above t, which chamber has an opening in the front, closed in working, but opened at the conclusion of the distillation for withdrawal of the residues. Just below the mouth of the furnace from three to five channels open into the furnace, and each of the open channels can be connected with a series of clay cylinders, in the interiors of which the mercury condenses and is collected, since the top of the stack is closed as soon as the fires get well alight and the furnace hot.

In other places, small charcoal pot furnaces are used, with a cylindrical clay extension with a hinged top, made by covering a rough iron framework with clay. The top contains one or more clay retorts, with ledges built into their interior surfaces on which the mercury collects. In practice these are charged with about 50 catties of ore and the same of charcoal, a blast started until the fire burns well, the top then fastened down, the blast stopped, or nearly so, and all cracks luted up with wet clay. After about 8 hours the retorts are broken open in water, and the quicksilver washed out.

In the manufacture of vermillion, a mixture of one part of sulphur with four parts of mercury is sublimed in a clay pot, which is covered with an iron plate kept wet and luted down. The heat is continued for from 18 to 24 hours, and after cooling the pot is broken up, the purer portions of the sublimate separated from the impure by grinding up the mass, washing repeatedly in water the resulting powder, when the purer quality settles at the bottom of the vat, the less pure rising in the form of a scum and is removed.

Nickel

Specimens of nickel ores, consisting of glance, pyrites, and kupfernickel occurring in the gneiss, slates, and quartz rocks of southeastern Yunnan have been seen, and sent to London for assay purposes, but so far as is known no workings for this metal exist in the region. In the N.W. corner of Kweichow near the town of Weihingchow, ores containing nickel in conjunction with bismuth, have been examined, and certain galenas assayed from the Tungchwan region, have been found to contain a small percentage of nickel.

Associated with cobalt the metal seems to exist in ores sent in for examination from the Red River district to the west of Kochiu, but in none of these regions, does any mining seem to go on, for either cobalt or nickel.

Graphite

Specimens of this mineral in massive formation have been seen and examined in the metamorphite rocks near Siaoweisi on

the upper Mekong, but appear to be impure and full of hard grit. So far as is known, no workings exist for this mineral anywhere in S.W. China.

Sulphur

In many parts of western and northern Yunnan, sulphur exists in its pure state as a coating or deposit on the mouth of the numerous hot and boiling springs that exist. No attempt has so far been made to export it owing to the lack of transport facilities and resulting high freights. A small shipment made by the writer in 1910 via Yunnanfu, cost more for freight than its market value in Hongkong, hence until shipping facilities are improved this mineral can be of no economic value save in the preparation of native explosives for which it is now used.

Petroleum

So far as is known this mineral is not worked in the area, but natural gas has been seen in many places in the south and west of Szechwan, in the district surrounding Mienninghsien, and it is known that in the salt wells of western Szechwan this gas is used in the reduction of salt. In the far north of Yunnan, in a small cup-shaped valley near the road just north of Kari (latitude 28.12 N 99.15 E) crude petroleum was examined which apparently rose from a fault in the rocks, and formed a semi-dried deposit on the mouth of a small well. Natives state that periodically an upheaval takes place and after a few minutes the oil settles back into the well, leaving a thick and viscid coating which the villagers collect and burn. In the spelter mines to the east of Oyinshan in eastern Yunnan, natives report that in 1908, while mining operations were in progress, a rush of gas, issuing from a fault in the workings, drove the workers out of the mines, and becoming accidentally ignited, burned fiercely for days, until the heat caused the workings to collapse. Little is known of the S.W. of China in regard to oil, and few travellers mention it. Yunnan, and a great portion of Kweichow and Kwangsi, being chiefly inhabited by tribes, who for the most part take little interest in anything apart from agricultural pursuits, dependence has to be put on the scattered communities of Chinese to report on any mineral finds, while the mountain ranges, rough trails and largeness of the area, prevent any systematic prospecting being done even if the temper of the inhabitants would allow it.

Salt

Salt exists and is worked in the following places:—In South-western Yunnan at Weiyuan, Chenyuan, and Kingtung, all in the prefecture of Puerhfu, the chief wells being at Weiyuan. In Eastern Yunnan at Chanyichow and to the north of Kutsingfu, in North-western Yunnan at Yakalo on the frontier of Tibet (corner of Yunnan, Szechwan and Tibet), at Yunglungchow to the west of Talifu. In Anningchow to the west of Yunnanfu, and in many smaller wells and deposits in the west of Yunnanfu, and in many smaller wells and deposits in the extreme north and west, as well as in certain wells in the Chinese and British Shan States in the far west. The Weiyuan wells that supply the greater part of Southern Yunnan are said to yield about 11,000 piculs per annum, and the Mohei wells yield from 2,000 to 3,000 piculs, the whole yield of the Puerhfu district being placed in 1908 at 35,000 piculs per annum.

At Mohei, twelve miles to the northeast of Puerhfu, rock salt occurs in considerable quantity, these mines having been worked since the third year of Yungcheng or 1725 A.D. The salt as found contains about 25 per cent of earth and foreign matter and is prepared for the market by dissolving in water, washing, and crystalizing the salt by evaporation. The yearly yield for 1912 was about 70,000 piculs from these mines. As Yunnan and Kweichow both import salt from Burma, the Shan States and Szechwan, it is difficult to arrive at the actual production, but having regard to the fact that the provincial salt taxation of these two provinces averaged about $2,000,000 prior to the revolution, the quantity obtained may be put at about half a million piculs per annum. Since the revolution, and the accompanying disruption of the revenue collecting department, although the price of salt has risen so high as to place it out of reach of many of the inhabitants, the tax collected has dwindled to less than a million dollars. The method of manufacture is the same all over Yunnan, wells are worked by means of a long rope, wound on a windlass, sometimes by hand but more often by means of buffaloes, bullocks or mules, the windlass in some cases being a huge framework or wheel from ten to fifteen feet in diameter winding a bamboo or fibre rope to which is attached either a skin or wooden bucket for hoisting the brine. Many wells are of great depth, those of Hsik'ungtsing being about 200 feet while those of Chenyuan average from 50 to 90 feet, and wells reported near the Yangtze in Szechwan are said to be over 600 feet. The brine is boiled down in large semi-hemispherical cast iron pots, till it becomes nearly solid, when it is allowed to cool and crystallize the resulting mass being afterwards washed to remove the iron and earth stains, and then re-crystalized. In Yunnan as a rule the salt is very white, but in Szechwan it is darker in color owing to iron staining, which as a rule is insoluble in water.

The contents of these pots are usually 3 piculs per charge, and the salt is then cut into 4 equal pieces, averaging 75 catties each, and is transported in this form, two pieces being a mule-load, to its final destination.

The whole of the western and far northern portion of Yunnan, as well as a large portion of Kweichow, being semi-independent of Chinese rule, salt is worked in varying quantities unofficially by the tribes, who so far as is known pay no taxes to any one for the privilege, and as rock salt occurs on the Yunnan-Cochin, the Yunnan-Tibet, and the Yunnan-Szechwan boundaries, it is impossible even approximately to guess at the actual population engaged in its production, or the amount produced.

Alum

This mineral occurs in the numerous hot springs to be found throughout the region of Yunnan, western Kwangsi, and Kweichow in solution, and is boiled down in iron pots similar to those employed in the manufacture of salt, but the quantity obtained is only used for local need in the manufacture of paper and medicine, and so far as is known is not exported.

Marble

Although not a mineral in the ordinary sense, marble is included in this list, as the mines at Talifu and in other parts of Yunnan, have become famous throughout China, and as the quantity in sight is enormous, with the coming of transportation it will no doubt be better known than it is to-day. About 500 people are employed in quarrying and splitting the stone into the thin panels that are used for making the screens and pedestals for which it is mostly employed. Tali marble has a curious staining of dark green and reddish brown running irregularly through the stone, which in the finished and polished panels bears a strong resemblance to pictures of trees and scenery, but whether this is natural, or partly aided by artificial dyes, is a debatable question. The stone is free from quartz veins and fossils and except for the staining is in every respect a first class stone.

Limestone

As Yunnan is more than 50 per cent limestone in its formation, certain areas contain fine, bright, close grained stones, free of veins, fissures, fossils, etc., and eminently adapted for lithographic stones, but the cost of transporting heavy masses is such as to render them useless in their present position.

Lime

Lime is burnt freely over the whole province, and used in the arts, and for construction purposes.

Gypsum

This mineral is found in crystalline formation in the clay beds of central Yunnan and southeastern Kweichow, and as anhydrite in many of the cavities and caves existing in the limestone pinnacle formation peculiar to the boundary country between Yunnan, Kwangsi, and Kweichow, where it is used by the natives for medicine.

Amongst the many clays to be found, kaolin, plastic, and bole abound in places too numerous to mention throughout the

west and south. Wherever Chinese communities or Shan tribes exist these are worked to a small extent for articles of domestic use, but few amongst the other tribes, if any, yet understand the art of pottery making.

Corundum

This is found in the Tengyueh district, in Talifu prefecture, in the Shunning prefecture and elsewhere, and is used in the cuttings of jade, and the polishing of brass and copperware. It is found in association with granular limestone, near the surface.

Platinum

This metal occurs alluvially in the bed of a small creek situated about 50 li north of Yunlungchow, where the natives in washing for gold find it in the form of small grains, in the gold riffles. So far as is known its use and properties are unknown to the workers and no systematic search is made for it.

Tungsten (Wolframite)

This is found in the hills to the south and southeast of Puerhfu in the district of Chen Pien Ting near the borders of the Wa States, and elsewhere in the southeastern corner of Yunnan. It is usually found in small crystalline masses, or as laminae with a semi-metallic lustre, and is washed out by the natives in their search for gold and tin, when its high specific gravity causes it to remain behind in the washings. So far as is known the mineral is not sold or worked in Yunnan, but in southern Burma, in the neighborhood of southern Moulmein, some hundreds of Chinese *work* the *deposits systematically*.

This general list of the more important minerals is by no means exhaustive, the country being for the most part unsurveyed, the natives suspicious of foreigners, the roads and travelling generally a difficult matter at the best of times, and often impossible during the rainy season, few Europeans have ventured to to make more than a passing trip through it. With the exception of the prospecting done by the Yunnan syndicate between 1900 and 1910 and the railway surveys made by Major Davies and Captain Watts-Jones, an account of which are to be found in the admirable work entitled "Yunnan" written by the former officer, no really authoritative work exists on this the greatest Asiatic mineral field. To the most of China, Yunnan and Kweichow remain practically unknown, and officials ordered there by the central government seldom if ever see more of the country than is absolutely necessary and have little in common with the many tribes who people it. In climate Yunnan is ideal, the greatest heat in summer being less than 90° whilst in winter it is seldom that 10 degrees of frost are registered save in the far northwest. The people are quiet, peaceful, and good workers. The population of the two provinces is about 12 millions, and the area is 210,000 square miles, so that the country cannot be said to be over populated. Save in the Salween and lower Mekong gorges fever is unknown, and the country is a healthy one and worthy of greater attention being given it by foreigner and Chinese alike. It should be noted however that although Peking has made many admirable laws in the past, as is being done to-day, such as the mining code, it is by no means certain that the provinces will see eye to eye with the central government in the matter of foreign participation in mining. The people will usually be found quite willing to combine forces with the foreigner, but it is by no means certain that the petty officials will allow what they have come to regard as their private property to be used by foreigners, and this term is used in the west country equally towards Pekinese, Cantonese, or any people who do not come from these two provinces.

France alone of all the European nations seems to realize the value of Yunnan, and this fact should be sufficient to make the opening up of the province seem desirable to Peking, but unless some guarantee can be given prospectors that their rights will be respected, their workings relieved from boycott and a free hand given them, it is unlikely that much will be done, but British and American financiers might well employ themselves in examining those mineral deposits whose geographical positions render them possible of economical working in the area, and endeavouring to reach some understanding with the provincial governments which would permit co-operative working.

Authur J. Moore Bennett.
June 1914.

SHANTUNG INDUSTRIES

The German-Chinese Silk Industrial Company, founded at Berlin in 1901, established a large steam filature at Tsangkow during 1902-03 for reeling tussore silk after a new method, by which it was hoped to obtain a finer and stronger and also more colourable ligament than produced hitherto. The first trials made with wild cocoons from the neighbouring Chucheng district proved a failure, owing to insufficient strength of the ligament. The Manchurian cocoons, tried next, were found satisfactory, and, special Customs facilities having been obtained for importation, these only were used afterwards. The training of a staff of men, women, and children, selected from the rural and fishing population, proved a difficult task and took several years, during which, naturally, more waste than silk was spun, and the company worked at a loss. By the end of 1907 a staff of 1,200 hands was fully trained, and the company was able to put on the market tussore silk of unsurpassed fineness and of the quality which had been looked for in the beginning, and which enabled weavers and dyers to produce a new style of tussore silks of a delicacy of tints and smoothness of material hitherto unattained. The cost of production of this silk was about 25 per cent. higher, and the price realised in Europe some 40 per cent. higher, than the best Chefoo reeled wild silk. Owing to misconceptions and misunderstandings between the Berlin head office and the Tsingtau manager, the company stopped working in 1909 at the very moment when full success appeared in view. In 1910 six Chinese merchants of Tsingtau and Chefoo formed a limited liability company for the purpose of taking over and reopening the factory, under the former manager; but the outbreak of the pulmonary plague in January, 1911, and the fear of having to reckon with this deadful disease for a number of years, caused the company to dissolve and give up the project. The plague having disappeared as quickly as it came, a new Chinese company was formed.

In the Poshan district are numerous potteries, the decayed slate occurring there giving an excellent clay. The output of earthenware in this region is estimated at 160,000 piculs per year. A factory for glazed pottery was started at Poshan, under government auspices, a few years ago. It produces vases of all shapes and dimensions, jars, flower-stands, flower-pots, etc., in two colours—a bluish grey and tea colour,—perfect in form and glazing, looking like porcelain. A number of specimens, presented by the provincial government, may be seen in the Tsingtau Customs Museum, which contains a considerable collection of Shantung manufactures and products of all kinds.

The Tsinanfu paper factory belongs to a Chinese company, with a nominal capital of Tls. 260,000, of which the provincial government paid Tls. 30,000 and supplied buildings to the value of Tls. 70,000; of the balance, only Tls. 60,000 are paid up. The company has the monopoly for Shantung, and shares may not be sold to foreigners. The factory started work in 1909; the machinery was supplied by a German firm and set up by a German engineer. The material used is two-thirds rags and about one-third foreign imported paper pulp. The output is reported to be of good quality and is under 300 piculs daily—about one-third of that possible,—and the factory hardly pays expenses.

The Germania Beer Brewery, established in 1904, supplies Tsingtau and most of the northern ports, to which 32,000 gallons were exported in 1911. The brewery is registered at Hongkong as the Anglo-German Brewery Company, Limited. The Gomoll Brewery brews Berlin Weissbier; its export is insignificant.

The Iltisbrunnen Aerated Water Company manufactures aerated water of any description, and exported during 1911 about 18,000 dozen quarts. The Iltisbrunnen is a natural spring in the wooded parts of the Iltis Hills.

A cask factory was started in 1911, to supply iron casks for bean and ground-nut oil exported abroad.

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CONTENTS

	PAGE
Tungchwan Copper Mines	207
The Handwriting on the Wall	212
Mineral Areas of Western China	215
The Monarchical Movement	228
Official Interference and Commercial Development	231
Status Quo in the Far East	231
Chinese to Aid American Bank	233
Shanghai Trade for 1914	234
Graphite in Honan	236
Panama Pacific Press Congress	237
Machinery Trade Opening in China	237
Trade Conditions in China	238
Successful American Philippine Lumber Co.	240
Engineering and Financial Notes	241

THE MONARCHICAL MOVEMENT IN CHINA

In our last issue we outlined the measures that had been adopted for the election of Citizen's Representatives who were to decide by ballot whether the republican system of government was to be maintained in China. When the elections began it was noteworthy that good order prevailed practically all over the country. It is true that in Shanghai and Hankow rumours were industriously spread foreshadowing grave disturbances, and a few arrests were made, but all official reports showed that in the Yangtsze Valley and South China there was little likelihood of the development of serious unrest.

The voting was conducted on different dates in the various provinces. The first to complete their balloting, Chihli, Fengtien, Kirin, Shensi and Hunan, were unanimously in favour of the re-establishment of monarchy, and nominated His Excellency, President Yuan Shih-kai as Emperor. The result of the balloting was published on October 28, and it was informally notified to the Legations in Peking. That afternoon the Japanese Chargé d'Affaires, Mr. Obata, accompanied by the Minister for Great Britain and the Minister of Russia, called upon the Chinese Minister of Foreign Affairs, Mr. Lu Cheng-hsiang, to tender certain "advice." The nature of this "advice" is explained in an official communiqué that was simultaneously issued in Tokyo, the text of which is given elsewhere. Briefly, the statement was made that though China appeared to be tranquil, there was grave danger of disturbances arising if the measures adopted to learn the will of the people on the monarchical question were proceeded with. It was suggested that the *status quo* should be preserved for the present, and the change in the form of government postponed until a more opportune time. The British Minister, while associating himself with this "advice," asked the Chinese Minister of Foreign Affairs if the information in the possession of his Government warranted confidence that there would be no disturbances attendant upon the change in the form of government. Mr. Lu Cheng-hsiang, in reply to the "advice" thanked the Japanese Chargé d'Affaires and his companions for their good will, and assured them that as the question of the form of government had been raised by the people themselves and had been submitted to the people themselves for decision, there was no ground for apprehension.

The communiqué issued by the Japanese Foreign Office was in the following terms.—

> "A movement has recently been afoot in China for a change of the national constitution and it now appears to have taken a rapid turn towards the realization of this aim. At present, when as yet there is little prospect of an early conclusion of the war in Europe and when a sense of misgiving prevails, every possible effort should be made to avoid the creation of a situation in any part of the world prejudicial to peace and tranquillity and thus prevent the outbreak of a new complication.
>
> "Although it would appear as if there were throughout the country no great opposition to the establishment of a monarchy, careful observation of the actual state of affairs in China, based upon information possessed by the Imperial Japanese Government, shows that it is undeniable that such appearances are more superficial than real. The undercurrent of opposition is far stronger than would be imagined and a feeling of unrest is spreading to all parts of the country. Reviewing the results of President Yuan's administration during the past four years, it will be found that the disturbed state of the provinces is becoming daily more tranquil and order now reigns in the country. If the President is resolved to maintain the political *status quo* of China and leave unaltered the line of progress he has taken, it will not be long before order is completely restored and perfect repose and tranquillity are assured in the country. Should, however, a sudden move be made by the President to establish a monarchy, it is quite possible that the spirit of opposition would immediately give rise to the risk of disorder and disturbance and China would once more be thrown into serious danger.
>
> "In the face of the present situation and having regard for the importance of the interests involved, the Japanese Government cannot but feel deep concern for the possible recrudescence of dangerous conditions in China. Furthermore, should disturbance break out in China it would not only be a great misfortune for her, but would do immeasurable harm indirectly to Powers having important interests in China, particularly to Japan, who has special relations with China. It is also apprehended that the general peace of Eastern Asia might thus be endangered. In view of such a state of affairs, the Imperial Japanese Government, solely actuated by a desire to preserve the peace of the Far East by timely

precaution, decided to approach the Chinese Government pointing out to them the fact that there was in the present situation, cause for grave anxiety and enquiring if the Chinese Government was fully convinced that it was capable of attaining peacefully the end of the monarchical movement.

"The Imperial Japanese Government will then present its views in the most candid and friendly manner with the end in view that the President of the Chinese Republic may be presuaded to adopt in the interest of all concerned the wise course of postponing the proposed scheme of changing the form of Government in order to prevent any outbreak of unfortunate disturbance and to consolidate the peace of the Far East. The Imperial Government accordingly has given the necessary instructions to the Japanese Chargé d'Affaires in Peking. In taking this step the Imperial Government has no intention of interfering in the domestic affairs of China. Their action is prompted solely by a desire to perform what they conceive to be their duty to a friendly neighbour."

On Monday, November 1, Mr. Tsao Yu-lin, Vice Minister of Foreign Affairs, with Mr. C. C. Wu, Councillor of the Foreign Office, visited the Legations of Japan, Great Britain and Russia and read a reply to the "advice" given substantively in the following terms:—

"There has been for some time a strong section of the people in favour of monarchy and more recently their ranks have greatly increased, including the most powerful and influential men in the country, and the undercurrent of agitation for the change in the form of government has daily grown stronger. The Chinese Government has always opposed the movement. But in the light of recent developments, if it were to resort to forcible suppression not only would the will of the people be ignored but there would have been considerable danger to peace and good order. Consequently, the Chinese Government has had no other course but to promulgate the bill passed by the acting Li Fa Yuan to organise the Assembly of Citizens' Representatives in order to determine this constitutional question in accordance with the wishes of the people. It will be remembered that the President, on the 9th of September, in a passage to the Li Fa Yuan, expressed the opinion that the proposed change was unsuitable to the circumstances, thus officially stating his personal disapproval of the change. Then after the promulgation of the law above stated, he issued a mandate on the 10th October stating that any hasty and rash change was undesirable and admonishing all superintendents of elections carefully to observe the provisions of the law, instructions which were again repeated in a circular telegram on October 12th. This shows that there has never been any intention of bringing about a hasty change. That the matter has had to be referred to the decision of the people is because, according to the Constitutional Compact of the country, sovereignty is vested in the people.

"The reasons for the general desire of change are that with China's immense area, the diversity in the five races, and the present standard of education of the masses, the frequent change of the head of the state under a republic will be fraught with great danger not only to Chinese life and property but to foreign interests as well. That this danger is not imaginary is shown by recent events in other countries similarly situated. Furthermore, during the four years since the establishment of the Republic men of wealth have refrained from investing their capital, business men make no permanent plans, administrators form no fixed policies and a general feeling of instability prevails. Such are the people's reasons. As a large majority of the people in the country desire and expect the change and as the question has been referred to the people's representatives for decision, and with political conditions unsettled, trade at a standstill, men's minds expectant, if through the dissemination of false rumours of evil persons untoward events should result, not only would Chinese suffer injury but foreigners would also be alarmed. So long therefore as the constitutional question remains unsettled so long will there exist an element of danger. Particularly is this so, since at the time of the communication of the advice, five provinces have already, through the Citizens' Representatives, declared for constitutional monarchy. The hope and expectation of the Chinese Government are that foreigners resident in China will pursue their business in security and that peace of the Far East will be maintained.

"When the discussion as to the form of government was at its height, the Chinese Government, apprehensive of danger, repeatedly telegraphed to the Provincial Authorities to ask whether they could absolutely maintain order. The reply in each and every case was that if the will of the people was not ignored, they would be responsible for public order so that when the change should be carried out no untoward events would occur. No report has been received of any strong opposition nor of anything which should cause anxiety as regards Shanghai, the Yangtze region, and South China. Naturally, the sources of information available to foreigners cannot be as full and accurate as those of the Chinese. The Chinese Government can only place full credence on these provincial reports.

"There is a small number of rebels taking refuge in foreign countries and other localities beyond the reach of Chinese law. They will always seek to stir up disturbance whether the government be a republic or a monarchy,—as in the past so in the future. But aside from dissemination of rumours and incitement to sedition, they have absolutely no power or influence, and during the last few years whenever they have created disturbances the same have as soon been suppressed. The provinces are now taking special precautions against them; and it is hoped that the Governments of the Powers, in all localities beyond Chinese jurisdiction, will co-operate in future, as heretofore, in keeping them under restraint.

"The Chinese Government appreciates the friendly spirit of the advice and the declaration that there is no intention of interference in China's internal affairs. The Chinese Government is, like the Governments of the Powers, animated by the desire to maintain the peace of the Far East and they may rest assured that the Chinese Government will spare no means to attain this common aim.

"In the reply to the British Government, the question addressed as to whether the Chinese Government was confident that the change in the form of government could be carried out without untoward events was further answered. The reply stated that the Chinese Government is at all times, in accordance with international law, responsible for the maintaining of order. In the carrying out of the change, the Chinese Government is confident that there will be no untoward events."

On Wednesday, November 3, Mr. Conty, the French Minister, under instructions from his Government, associated himself with the "advice" given by Japan. On the other hand a telegram from Washington stated that Mr. Lansing, Secretary of State, had declined to express to Baron Chinda, the Japanese Ambassador, his views regarding the movement to change the form of Government in China, as such an expression might be construed as interference with China's internal affairs.

While this interchange of diplomatic views was being held the elections of Citizens' Representatives, and balloting in those provinces where the elections had been completed were peacefully proceeding. There was, however, considerable perplexity expressed in regard to the real meaning of the intervention of Japan coming as it did after the elections had actually started. Count Okuma, the Japanese Premier, and Baron Ishi', the Japanese Minister of Foreign Affairs, had both expressed the opinion that the question of the form of government in China was one that solely concerned the Chinese people. Some difficulty was felt in reconciling these utterances with the action that almost immediately followed.

The Election Law of the Assembly of Citizens' Representatives.

A certain amount of misconception has existed with regard to the elections which have been proceeding and have now been concluded to form the body known as the Assembly of Citizens' Representatives, constituted for the purpose of determining whether the Republican form of government shall continue or whether it shall be replaced by the Monarchical form. As the whole procedure is of historical interest we give below an explanation of the law under which the elections were conducted.

The election law of the Assembly of Citizens' Representatives is based on the election law of the National Convention, promulgated on March 12, 1915, and that is in turn based on the election law of the Li Fa Yuan, promulgated on October 27, 1914. In order, therefore, to have a clear idea as to the elections at present going on, it is necessary to know not only one law but all three laws, and, further, certain regulations governing the operation of those laws issued from time to time.

Classes of Representatives

The Citizens' Representatives are of the following nine classes:—

1. One representative from each district in all provinces and special administrative territories of the country, amounting in all to 1834.
2. Thirty-two representatives of Outer and Inner Mongolia.
3. Twelve representatives of Tibet.
4. Four representatives of Kokonor.
5. Four representatives of Mohammedans.
6. Twenty-four representatives of the Eight Banners.
7. Sixty representatives of the Chambers of Commerce and Chinese Residents abroad.
8. Thirty representatives of those who have performed meritorious services to the State.
9. Twenty representatives of learned and eminent scholars.

Representatives of Provinces and Special Administrative Territories

In Art. 4 of the Law on the Organization of the Assembly of Citizens' Representatives it is provided that the representatives of the citizens in the provinces and special administrative territories shall be elected by the successful candidates of the Primary Election for the

National Convention in each district, and by those who have the qualifications to be candidates in the Final Election of the National Convention. In Art. 19 of the law on the Organization of the National Convention it is provided that with regard to the qualifications of the electors and the candidates of the election and its procedure, the provisions of the Election Law of the Li Fa Yuan shall apply. In Art. 4 of the Election Law of the Li Fa Yuan it is provided:—

Any elector of the Primary Election of a province or special administrative territory who possesses one of the following qualifications, shall be eligible to be a candidate of the Primary Election:—

(a) Who possesses the qualifications as provided in Clause *a* of Article 2, and who has one year or more of experience.

(b) Who has the qualifications provided in Clause *b* of Article 2, and who continues studying in a high-grade technical school or who has an education similar to that of such a graduate.

(c) Who has the qualifications as provided in Clause *c* of Article 2 and who has immovable property to the value of $10,000 or more.

(d) Who has a capital of $10,000 or more as provided in Clause *d* of Article 2.

The qualifications provided for in Art. 2 of the same law, are possessed by a person:—

(a) Who has held or is holding the position of a high official.

(b) Who has graduated from an institution not lower than the middle school or who has an education similar to that of such a graduate.

(c) Who has immovable property of $5,000 or more.

(d) Who has a capital of $5,000 or more invested in commerce or industry.

The above qualifications in Article 2 are for *electors* at the Primary Election of the Li Fa Yuan, and the qualifications provided for in Art. 4 are for *candidates* in that Primary Election. Hence the provisions of the latter are much more stringent than those of the former. The successful candidates of the Primary Election of the Li Fa Yuan possessing the qualifications of Art. 4 are also the successful candidates of the Primary Election of the Citizens' Convention; and are likewise the successful candidates of the Primary Election of the Assembly of Citizens' Representatives.

With regard to those who have *qualifications to be candidates in the Final Election* of the National Convention, Art. 5 of the Election Law of the Li Fa Yuan provides.—

Chinese male citizens above thirty years of age having one of the following qualifications shall be eligible to be candidates and to be elected members of the Li Fa Yuan:

(a) Who has rendered meritorious services to the country.

(b) Who has been a high official for five years or more.

(c) Who is a learned and eminent scholar.

(d) Who has graduated from an institution not lower than the middle school after a study of not less than three years either in China or abroad, or who has a similar education.

(e) Who has been a teacher of an institution not lower than the high-grade technical school for three years or more.

(f) Who has immovable property of $30,000 or more.

(g) Who has a capital of $30,000 or more invested in commercial or industrial enterprises.

The above provisions are more stringent than those provided for in Art. 4. because of the supreme importance of the problem of the change of the form of State. Unless the best qualified citizens are elected the real will and desire of the people will never be ascertained.

Mongolia, Tibet, Kokonor, and Mohammedans.

In Art. 5 of the Law on the Organization of the Assembly of Citizen's Representatives it is provided that the representatives of the citizens of Mongolia, Tibet, Kokonor and Mohammedans shall be elected by single election by the electors of the Combined Electorate of Mongolia, Tibet, and Kokonor for the Citizens' Convention. According to the provisions made in Art. 19 of the Law on the Organization of the Citizens' Convention, the provisions made in the Election Law of the Li Fa Yuan apply, which are to the effect that the electorate of Mongolia, Tibet and Kokonor shall consist of hereditary princes, dukes and nobles above thirty years of age and other persons who hold similar qualifications.

Detailed Regulations enumerate who are these hereditary princes, dukes, and nobles and also define who are the persons having similar qualifications.

The investigation of the qualifications of the electors and candidates of the above mentioned class is conducted by the Board of Mongolian and Tibetan Affairs, and the Superintendent of Elections may ask the superior officials of the various localities to hold local elections at their localities, or for reason of convenience in voting, may organise a combined election in Peking.

In Arts. 6, 7, 8 and 9 of the Law on the Organization of the Assembly of Citizens' Representatives it is provided:—

Eight Banners.

The Representatives of the Manchu, Mongolian and Chinese Banners shall be elected by single election by the hereditary princes, dukes, and nobles of the Banners in the Special Central Elections for the Citizens' Convention.

Chambers of Commerce and Residents Abroad.

The representatives of the Chambers of Commerce of the whole country and Chinese Residents abroad shall be elected by single election by the merchants, artisans and industrial men possessing capital of $10,000 or more, and Chinese Residents abroad possessing commercial or industrial capital to the amount of $30,000 or more, in the Special Central Elections for the Citizens' Convention.

Meritorious Services.

The representatives of those who have performed meritorious services to the state shall be elected by single election by those who have performed meritorious services to the state in the special Central Elections for the Citizens' Convention.

Learned and Eminent Scholars.

The Representatives of the learned and eminent scholars shall be elected by single election by learned and eminent scholars, persons who are graduates of an institution not lower than the high grade technical school after completing a course of not less than three years, or who have qualifications similar to the graduates named above, and persons who have taught for two or more years in an institution not lower than the high grade technical school, in the Special Central Elections for the Citizens' Convention.

By "Special Central Elections" is meant the elections held in Peking as provided by the Election Law for the Li Fa Yuan and by that for the National Convention. The electors must besides possessing the special qualifications be Chinese male citizens at least thirty years of age who at the time of registration of electors are residing in Peking.

Explanation of Terms.

All the terms used above, some of which may seem vague and elastic, have been defined and explained by orders and regulations duly promulgated. For example the following:

A person holding the position of a high official is one who is holding or has held the rank of a "recommended" official as, e.g., a district magistrate. A person who has an education similar to that of a high grade technical school is one who has obtained at least the degree of "Chu Jen" in a proper examination.

A person who has rendered meritorious services to the State is one who has received orders or decorations stated to be on account of meritorious services.

A learned and eminent scholar is one who has profound ancient and modern or Chinese and foreign learning and who has printed and published works beneficial to the country or to society, or who though not having printed and published such works has suitable testimony to such effect.

On Thursday, November 4, Mr. Obata, the Japanese Chargé d'Affaires, visited Mr. Lu Cheng-hsiang and asked him for an explanation of the reply that had been given on November 1. It is reported that substantially the questions were (1) whether the Chinese Government intended to re-establish a monarchy in spite of the advice given, and (2) whether the Chinese Government was prepared to guarantee the protection of foreign interests in China on the event of disturbances breaking out. This request for further information was made by Japan on her own account and not as the representative of the Allied Powers.

The Japanese Chargé d'Affaires, and the Ministers of Great Britain, Russia and France on November 11 visited the Foreign Office by invitation when Mr. Lu made a statement. He reiterated the fact that the Chinese Government had already replied to the Powers that it had never had the intention of hastening the change in the form of government. At the present moment, he pointed out, the number of votes cast in the provinces amounted to more than half the total that could possibly be registered so that the change in the form of government had practically already been decided upon by a majority of the people of China. After consultation with the various Ministries and organs of state it had been ascertained that, after the decision of the people had been recorded, the steps that it would be necessary to take were many and varied, so that before the performance of the grand ceremony could be carried out full and complete preparations had to be made and a suitable time had to be selected. There was, therefore, necessity for some delay, he said, but judging from the tendency of popular opinion this delay would be distasteful to them. Furthermore, there were rebels in places beyond the jurisdiction of the Chinese Government who were taking advantage of the present moment to incite people with evil designs and cause disturbance and misunderstanding with regard to the motives actuating the presentation of advice by the Powers. In the event of any unexpected occurrences,

however, the Chinese Government were fully able at all times to deal with them as they arose.

The Ministers of the Powers made no comment upon this statement, and at the time of writing no further extra-Chinese steps have been taken, except that Italy has associated herself with the advice given.

On November 10 Admiral Tseng Ju-cheng, Commissioner of Defence for Shanghai, was brutally assassinated in the International Settlement of Shanghai, when on his way to a Coronation reception at the Japanese Consulate. An immediate result of its committal was the adoption by the municipal authorities of Shanghai of measures to put an end to the facilities that had so long existed for criminals to seek immunity by posing as political martyrs.

The President on November 12 issued an important Mandate in denunciation of rebels. In this His Excellency pointed out that when the rebels had six provinces behind them and over 200,000 well equipped soldiers they were utterly overthrown in less than 50 days, although the Government at the time was in financial difficulties and the army was in need of reform. Now the "rebels" consisted of a few tens of thieves and outlaws, while the Government's finances had improved and the army had been reorganized. There was, therefore, no prospect of a successful rebellion. Perhaps this Mandate may be taken as an answer to the allegation that there is danger of disturbances following the change in the form of government that would endanger foreign life and property.

The voting in the meantime proceeded peacefully throughout the country, and was unanimously in favour of the restoration of monarchy. In Sinkiang some irregularities in procedure led to the quashing of the election. No disposition was shown on the part of the provincial authorities to acquiesce in any delay in making the change, and telegrams were received in Peking towards the middle of the month in which it was taken for granted that it would be carried through.

An interesting interview which the Special Correspondent of the "North-China Daily News" had with Baron Ishii, the Japanese Minister of Foreign Affairs, was published in that paper on November 15. The correspondent's telegram, which was dated Kioto, November 14, read as follows:

"I had an interview with Baron Ishii, the Minister for Foreign Affairs, this morning, and learned that the Chinese reply to the advice of the Allies is now under consideration by the Governments concerned. Japan does not regard the Chinese reply as altogether satisfactory, for it gives no indication of the duration of the postponement of the proposed change of Government. Japan's view is that no change should take place while there is evidence of opposition to it in China. Japan has been prompted to propose that the Powers should advise China partly on the general ground of her responsibility in present circumstances for the maintenance of peace in the Far East and partly for the special reason that her business interests are being seriously affected by the present suspension of trade in the Yangtze Valley and elsewhere. This is attributed directly to fear on the part of the Chinese that political trouble may arise in consequence of the projected change. Japan recognizes the artificial character of the movement and believes that the Chinese people will welcome a postponement."

OFFICIAL INTERFERENCE AND COMMERCIAL DEVELOPMENT

The theory is sometimes advanced that there would be greater industrial and commercial development in China if more direct encouragement were afforded by the officials. Though officials may undoubtedly assist in this direction, a study of the conditions in the most advanced countries leads to the belief that the best results are attained if the encouragement be passive rather than active. Business thrives best where it is least interfered with. It is, of course, true that vast concerns have been built up as a result of government assistance in the shape of subsidies, but successes quite as great have been achieved in countries where the subsidy system is not in vogue. Consequently it may be said that, though subsidies may help to encourage development, they are not essential.

The condition that is common to all the countries in which there has been marked industrial and commercial development is the abstention by the government from any action calculated to prevent the business-man from obtaining the full reward of his enterprise. The law in such countries defines clearly the obligations of any individual or company to the State, and the burden that will fall upon any enterprise can be exactly calculated before it is entered upon. In such circumstances ventures by individuals or joint-stock corporations can be embarked in with confidence, as it is known that success will not result in penalization by the government. No taxation other than that authorized by the known laws of the land can be imposed, and secure in this knowledge the best efforts are made to attain success.

In China, unfortunately, this passive encouragement has not been afforded in the past. "It is a fine morning; let us go out and kill something," is said to be the unconscious revelation by the Briton of the British character, but of Chinese officialdom the phrase should be, "It is morning; let us go out and tax something." In former days success has been penalized by official exactions. If a new industry was proposed officialdom did not consider to what extent it might add to the wealth of the country or open up new channels of employment, but to what extent it could be taxed. To some extent this point of view prevails to-day, and until it is abandoned there can be no marked industrial and commercial development in China. Chinese capital will continue to be invested in foreign joint-stock concerns in the treaty ports, and industries that might be promoted with great advantage to the country will be neglected.

There have been indications lately that the Government has recognised that the policy that has previously obtained has been detrimental to every one concerned. A tendency is being shown, as instanced by the activities of the Commercial and Industrial Commission, to devote increasing attention to the organization of the industries of the country with a view to the encouragement of production. To aid the work of this Commission the Government should issue definite instructions, to which the very widest possible publicity should be given, that no official is to collect any additional dues, charges or taxes of any kind whatever from those engaged in promoting industries. If this were done, and any official evading the instructions were most severely punished, the result would certainly be that a great impetus would be given to industry and commerce. Although not a rich country compared with the great industrial nations, China has sufficient capital available within her own borders to make a modest beginning, and with her inexhaustible supply of raw material and labour she would quickly gain her rightful place among the manufacturing nations. There is no need for the Government of China to give their people subsidies (except in certain specific industries); what they want is security for their capital and profits from the rapacious tax-collector.

THE STATUS QUO IN THE FAR EAST

A visit paid by three diplomatists to the Chinese Minister for Foreign Affairs on October 28 in order to proffer him some friendly advice is likely to assume historical importance. There were several things about the visit that were unusual. In the first instance the subject upon which advice was tendered was China's domestic policy, the question whether the Republic should be replaced by a constitutional monarchy. Then although the three diplomatists were the Minister for Great Britain, the Minister for Russia and the Japanese Chargé d'Affaires, the latter took precedence. Another fact that excited comment was the delivery of advice at a moment when its acceptance would be most embarrassing to China. Several of the provinces had

already voted in favour of the restoration of monarchy when China was advised to postpone the change in the form of government.

There are some who hold that there is sinister significance in the fact that Japan took the lead in this matter. They fear that there has been a tacit admission by Great Britain, Russia, France and Italy—all of whom are now associated with the advice—of the political hegemony of Japan in the Far East. Japan, they think, has claimed as a reward for services of various kinds that she has rendered the allied Powers, the recognition of her paramount interests in China. This is the view taken by many of the Chinese, and they do not disguise their fears that the outcome will be anything but beneficial to China. The fate of Korea was sealed from the moment that Japan's paramount rights in the Peninsula were recognised. The independence of China has hitherto been preserved because the nations whose interests in China are commercial rather than political realised that those interests could be best secured by the maintenance of China's independence and equal opportunity for trade and commerce. Those considerations still exist, but these Powers are waging a war of so desperate a character that they cannot afford to allow any difference of opinion to arise between Japan and themselves. Therein lies Japan's opportunity and China's peril.

Another explanation, which puts the action of the Entente Powers in a more favourable light, finds acceptance in some quarters. It is suggested that these Powers, realizing that it was impossible to prevent Japan from meddling in China's domestic affairs, associated themselves with the intervention in order to restrain Japan if she went too far. Hostility to Japan could not help China in existing conditions while co-operation with Japan might prevent that Power from subjecting China to undue pressure. The explanation is plausible enough, but it finds little acceptance among the Chinese, who are obsessed by the fear that the impending fate of their country is already throwing its shadow before.

If the motives inspiring the association of the Entente Powers with Japan are difficult to understand, still more obscurity surrounds the motives of Japan herself. In an official communique the Japanese government disclaimed any desire to intervene in China's domestic affairs and explained that the advice to China was inspired by neighbourly friendliness. This declaration has not impressed the Chinese. They point out that timely advice informally offered might have been considered friendly. But the time that this advice was given was most untimely, and moreover, so much publicity was given to its presentation that it created a feeling of unrest among those elements of the Chinese population who are most prone to disorder. Until the advice was given the lawless elements in China were well in hand, and even those in the foreign settlements and adjacent foreign territory had become remarkably quiescent. The voting on the question of the form of government was being conducted in an orderly and peaceful manner, and there seemed no reason to apprehend disturbances. That was the situation when Japan tendered her advice, and gave the utmost publicity to her action. The effect, according to the *Nichi Nichi*, a well-informed Tokyo newspaper, was to encourage the rebel leaders who were lurking in Singapore, to proceed with their plans to overthrow the Government of China. It is remarkable that a Japanese newspaper should speak so frankly in regard to the effect of the advice, but there is no doubt that the rebels put their own interpretation upon Japan's action and from that interpretation gained renewed confidence.

The assassination of Admiral Tseng, the Chinese Commissioner of Defence at Shanghai, is considered in some quarters to be an indirect outcome of Japan's advice. Whether that be so or not, too much importance need not be attached to the outrage. Admiral Tseng has lived under threats of assassination for the past few years, and if the question of a change in the form of government had never arisen his fate would probably have been the same. His offence in the eyes of the assassins and those who sympathize with them was that he was a stern upholder of order. Those who regard Japan with distrust frankly express the belief that she would witness the growth of unrest in China with complacency, if military measures in China became necessary her hegemony would be firmly established, as no other country could protect foreign interests if they were threatened. Consequently disorder in China would give her an opportunity of further increasing her power and prestige.

Whatever opinions be held in regard to the motives animating Japan and the Entente Powers, it has to be recognised that the *status quo* in the Far East is in danger of alteration. At present China's independence is, in effect, preserved by an international guarantee to which all the great Powers have subscribed. While that guarantee exists not only is China given a sense of security, but every Power can feel that its interests in China cannot be sapped by unfair competition. This being so a tendency to exchange the international guarantee for the paramouncy of one Power must be regarded with apprehension. This is evidently the view taken by the American State Department. When the Secretary of State was invited to associate America with the advice to be offered he declined on the ground that it was undesirable even to appear to wish to interfere with China's domestic concerns. The assumption is perhaps fair that Mr. Lansing was animated not only by the reason given, but by the desire to have his hands free in view of probable developments. The watchful detachment of America is a source of satisfaction to the Chinese and to the great body of foreigners of all nationalities in China who realize that their interests would be gravely jeopardized if any material alteration in the *status quo* were brought about.

FUSHUN COLLIERIES EXTENSIONS

The Management of Fushun Collieries, which has had its hands tied owing to curtailment of expenses by the South Manchuria Railway Co., is trying to secure a more liberal appropriation for the next fiscal year in order to carry out some of its cherished plans, including the extension of open cast at Kuchengtzu, the completion of Wantawo Incline and the excavation of a new shaft between the East and West Chienchinchai Shafts. When these plans are brought into maturity, the necessity of constructing railway sidings 20 miles or so will have to be met. All these projects will cost about between Y2,000,000 and Y3,000,000.

Then the present output of sulphate of ammonia at the Water Gas Producer Factory is intended to be nearly trebled from the next fiscal year, that is to say, the daily output is expected to be raised to at least 30 tons. As previously stated, the founding of a factory for manufacture of sulphuric acid is also under contemplation. These extensions will require an outlay of about Y3,000,000. The aggregate capital expenditure for the next fiscal year is put at between Y7,000,000 and Y8,000,000.

Hitherto, sulphuric acid for use in the manufacture of sulphate of ammonia at the Water Gas Producer Factory is valued at Y120,000 for 3,000 tons of sulphuric acid consumed. This supply has heretofore been obtained from Japan, but, being desirous of manufacturing it at Fushun, the construction of a sulphuric acid factory has already been taken up, beginning with the laying of the foundation. The construction work will entail an outlay of altogether Y600,000, but a sum of Y200,000 is wanted for the immediate purposes.

Regarding the report that it is impossible to make dye-stuff from the coal tar obtained at the Water Gas Producer Factory, the question is not one of possibility, but one of commercial feasibility. The cost of production is dearer than in the use of tar obtained from coal. It would be simpler and more profitable to manufacture paraffin, benzine, etc., from the tar than dye-stuffs, and a plan is under way at the Collieries to subject this scheme to a practical test.

The estimated annual outputs of Fushun Collieries are about 2,200,000 tons without a material change from a normal year. Laohutai Pit, which suffered from a fire last winter, has been restored to good working order. At present, the coolies employed at the collieries and for other purposes roughly number 20,000, both the underground and the surface gangs combined. The subterranean gangs consist of 7,000. At one time many left the collieries to seek better employment in Russian territory. The matter caused some concern, but it has been found to have no appreciable effect upon the efficient working of the Collieries.

CHINESE AID FOR SINO-AMERICAN BANK

Eighty-four delegates from various Chambers of Commerce of China, were in session in Shanghai as this issue of the FAR EASTERN REVIEW went to press and by their deliberations have brought the matter of the proposed Sino-American Bank to be an accomplished fact, so far as the expected co-operation of the Chinese people is concerned. The following points regarding the bank were approved:—

That the Chinese subscribe to $5,000,000, or half of the bank's proposed capital of $10,000,000, the Chinese Chamber of Commerce of Shanghai agreeing to raise $2,000,000 in six months, leaving $3,000,000 as the share to be raised by the various provinces. The latter were divided into three classes, as to the amount it was expected could be raised from each, although these estimates, members of the Chamber say, are likely to be exceeded in several of the provinces. Provinces of the "A" class are to raise $200,000; provinces of the "B" class, $150,000; and provinces of the "C" class, $100,000. In return for this co-operation, the Chamber of Commerce decided that one half the directorate of the bank must be Chinese, and that the policy of the bank be to foster trade between the United States and China.

This banking scheme is an outgrowth of suggestions that were made when the Nanyang Industrial Exhibition was held in Nanking, but it was not brought to a focus until the recent visit of Chinese industrial delegates to the United States.

At one of the early sessions of the present conference, it was proposed that an endeavor be made to bring about much closer relations between the Chinese and American Chambers of Commerce, so that direct trade between the American manufacturer and the Chinese consumer could be facilitated.

In connection with this question of close relations, the conference voted that the United States authorities should be requested to recognise as prima facie evidence in all cases of Chinese merchants visiting the United States, photographs of identification stamped with an official seal which is to be requested from the Chinese government and registered, both in the United States Consulates in China and in all the ports of entry of the United States.

Duly stamped copies of the photographs of Chinese proposing to visit the United States will be sent in advance to the Immigration authorities; the Chinese Chamber of Commerce, the Chamber of Commerce of the United States; and the United States consular authorities, while copies will be carried by the travelling merchant. It is hoped by this means to avoid the frequent detensions of Chinese and the hardships suffered by them when visiting the United States, owing to the rigor of the Immigration Laws

Although co-operation in the bank plan was readily voted, the matter of a joint exposition of Chinese and American products met with another solution. It was decided that expositions of United States goods should be carried out with funds raised in the United States by the interested manufacturers and it was stated that expositions were to be located at Shanghai, Hankow, Canton and Tientsin.

As to the Chinese expositions it was decided to ask that these be financed by the Chinese Government and in case of funds being available, they will consist of displays of Chinese produce and manufactures which under the present plan will be established in San Francisco and New York first, Chicago and New Orleans to follow later.

In the matter of financial aid for the newly organized Trans-Pacific Steamship Company, it was finally decided that the Shanghai Chamber of Commerce should subscribe to $1,000,000 of its shares in order that the steamship company might have immediate funds in hand to go forward in its plan to put four steamers in operation at once. This makes the total pledged by the Shanghai Chamber $3,000,000 and while it was at first proposed that the whole of this sum should go for shares in the new Sino-American bank, it was later considered a better policy to divert $1,000,000 of it to the needs of the Steamship Company. No plan was made for the participation of the provinces in the Steamship Company, as in case of the bank, although it is expected that large subscriptions to the shares of this enterprise will be raised privately or through the indirect influence of the visiting delegates from the provincial Chambers.

Of the eighty-four delegates present at the conference, there were representatives from all but five provinces, Kweichow, Yunnan, Honan, Kwangsi and Kwangtung.

Although the absence of delegates from Kwangtung was remarked upon by several of the delegates, it was laid down to failure to make suitable steamship connections as both these projects, the Steamship Company and the bank, are expected to give great impetus to the advertisement of the Southern provinces as well as the Northern provinces. Although the other southern provinces were without delegates, Fukien was represented by three delegates who took an active part in the proceedings.

The sessions of the conference were presided over by Chang Chen-hsun. The conference closed December 1, after being in session one week, the closing ceremonies being marked by an elaborate banquet given by the Taoyin of Shanghai, Mr. Chu Tsing-tseng, who was president of the Shanghai Chamber before his recent nomination as Envoy for Foreign Affairs to succeed Mr. Yang Cheng.

PHILIPPINE SUGAR CENTRALS

The government central sugar board has announced that the report that an additional appropriation of P500,000 would be asked by the board was without foundation of fact. The truth of the matter is, it is stated, that there are two proposals now under consideration. The first of these calls for an amendment to the original act by increasing the total appropriation to P5,000,000. With this amount available the board feels that it will be in a position to guarantee the construction of at least three, and probably four centrals in different localities. The other proposition is to amend the act so as to provide such additional funds as may be necessary to meet the expense of erecting and providing equipment for the Isabela mill only. Although no specific amount is mentioned in the latter amendment, the board seems to be of the opinion that it should not be hampered when bids are again called for by a limitation which would prevent the acceptance of an otherwise advantageous offer, merely because the amount involved is slightly in excess of the P2,000,000 now made available for expenditure by the board.

Representatives of the bureau of audits have been conferring with the board upon the financial aspects of the situation, and it is understood that several of the most important of the proposed amendments to the organic act are designed to permit the board more latitude in dealing with matters of that nature.

PANAY AUTO LINE

The acting secretary of commerce and police has approved the reversion of P5,000 of the Panay automobile line operated by the government, to be used in meeting the cost of maintenance of that line. The legislature apropriated P10,000 for that purpose, but this sum has proved to be insufficient to meet its needs, and as its receipts over and above actual operating expenses have amounted to a trifle more than P7,000 thus far this year it has been decided to use P5,000 of that amount for maintenance.

UNITED STATES CAPITAL FOR CHINA

The formation of a company with a capital of fifty million dollars under the promotion of Mr. F. A. Vanderlip, president of the New York National City Bank, was announced on November 2. It appears that large investment of American money in China is one of the objects of the company. The directors of the company include prominent financiers.

SHANGHAI TRADE REPORT FOR 1914

[By F. S. Unwin, Commissioner, Chinese Maritime Customs]

The year under review shows a diminution in revenue of Hk. Tls. 2,414,000 and in the value of the trade of Hk. Tls. 35,000,000. At its commencement there were good prospects of brisk business, a general all-round improvement having been predicted in the closing days of 1913. After the Chinese New Year these expectations appeared likely to be realised; a period of confidence set in, and throughout the country a demand for foreign goods made itself felt. Money was easier—the Chinese beginning to bring out the silver they had hoarded—and hopes of a thriving export trade were widely entertained. In spite of the disturbed state of affairs in the provinces, due to the depredations of White Wolf, a substantial increase in the Customs revenue for the first three months of 1914, as compared with the same period in 1913, was registered, but was counterbalanced by a reduction in revenue during the second quarter. For more than 12 months White Wolf had overrun the fairest of the provinces of China, his incursions carrying him through Honan, Shensi, Anhwei, and Hupeh before he was finally run to earth in the beginning of August. In order to preserve law and order the Government had been forced throughout the period of his activity to keep large bodies of troops employed at strategic points.

Even before the suppression of this famous brigand had been effected, the war in Europe had broken out, leading to the complete paralysation of trade for a time. Business generally came to a standstill and the export trade ceased entirely. The banks were unable to carry out any exchange transactions with the exception of demand drafts for small amounts. The Stock Exchange was temporarily closed. Many contracts made on very advantageous terms to the exporter were allowed to lapse or were cancelled. Sailings to Europe were postponed, coast sailings even being affected by the crisis, and it was everywhere a case of marking time and awaiting developments.

Although China herself was not involved in the war, the situation in Shantung created by the investment of Tsingtau contributed towards intimidating merchants and thereby hampering trade. Close upon this came the news of the sinking of merchantmen in the Bay of Bengal by the German cruiser *Emden*. With the fall of Tsingtau and the destruction of the *Emden*, off the Cocos Islands on the 29th November, a feeling of greater security returned, and before the conclusion of the year under review a boom in exports set in, favoured by the exceptionally low exchange. Unfortunately, in the meantime many large ships had been taken away from their run—either lying in neutral ports or being chartered by their respective Governments for special work,—so that shipments were seriously retarded. The financing of trade with Europe was impossible; but if the inland markets had been able to absorb stock at anything like cost, Shanghai firms would at all events have had no cause to complain.

During the year Shanghai street traffic has developed considerably. The Shanghai electric tramcar service has more than sustained its popularity, the number of passengers carried during the year being far in excess of that of 1913. Building activity in 1914 may be described as remarkable and unparalleled in the history of the port. During the first three months of the year alone 2,394 houses were under construction. The number of buildings in process of construction in 1914 totalled approximately 10,000. This included mills, godowns, shops, offices, and Chinese and foreign residential premises.

It is interesting to note that Shanghai bids fair to become one of the principal centres of the cotton industry in the Far East. The Hwa Sing Cotton Company is building a large mill with adjacent godowns and storerooms, and three mills for this company are removing from Hongkong to Shanghai. The exceptional prosperity of the cotton trade has led the Shanghai Cotton Company to double its plant, and all foreign-controlled mills have made additions to their looms and spindles. Even the Japanese seem to give preference to Shanghai as against Osaka for manufactures intended for the Shanghai market, which, being in the midst of a cotton cultivating district, has a larger scope for its wares.

A new delimitation of the French Settlement was undertaken during the year and the French authorities were given full control of the roads that have been built beyond the old boundary. The year 1914 saw the scheme for filling in the Yangkingpang passed by the land-renters, the area thus gained to be converted into a fine boulevard. The estimated expenditure in connexion with the filling in of the Yangkingpang and Defence Creek, together with drainage, road construction, and contingencies, amounts to Tls. 211,403. This is not excessive considering that the proposed road will be of great service in relieving the congestion of traffic in the Maloo, as well as give a fresh impetus to building activity in the Settlement.

The number of fires throughout the Settlement was, as usual, considerable. Early in February the large cotton godown of Messrs. Mackenzie & Co. was destroyed by fire, the actual damage being estimated at Tls. 400,000, no less than 16,000 bales of cotton having been burnt. During the same month Messrs. Hall & Holtz's furniture factory, with adjoining bakery and store, was completely gutted, the losses incurred exceeding Tls. 100,000. Later on in the year a disastrous fire broke out in the Chinese city, involving the destruction of a theatre reputed to be the finest in Shanghai. On the 6th November a serious fire occurred at a Japanese cotton mill near Wuchow Road, by which the mill was totally destroyed, as also were several terraces of Chinese houses.

Rapid progress has been made towards the reorganisation of the Kiangsu-Chekiang Railway under the control of the directorate of the Shanghai-Nanking Railway. This line received no small damage at the hands of the rebels during the disturbances in 1913. General plans for the linking up of this railway with the Kiangsu line have already been formulated and submitted to Peking, where, preliminary sanction having been received, negotiations for the purchase of the necessary land are proceeding apace. Under the new administration a number of reforms have been mooted—among them the abolition of the dual authority by which part of the line was financed and managed by Kiangsu and the remainder by Chekiang—in favour of State ownership in the future.

Revenue

With the exception of transit, which registers a gain of Tls. 16,000 on the results of 1913, all other revenue headings show a decided reduction. Import duties alone suffered to close on a million taels, two-thirds of which can be accounted for by the losses under British and German flags, amounting to Hk.Tls. 640,000, *i.e.*, Hk.Tls. 380,000 and Hk. Tls. 260,000, or, roughly, 60 and 40 per cent. respectively. Tonnage dues show a decrease in sympathy with this of nearly Hk.Tls. 100,000. Coast trade and export duties also share in the general decline all round to the extent of over Hk.Tls. 470,000. The diminution in opium revenue, about 50 per cent., is not the result of the dislocation of the trade caused by the war, but of the gradual suppression of the drug.

Imports, Direct and Coastwise

The gross value of foreign imports for 1914 is, roughly, Hk. Tls. 241,000,000, or about Hk. Tls. 5,000,000 less than in 1913. In this decline opium accounted for Hk.Tls. 3,600,000, some 7,665 piculs less having been imported during 1914, the equivalent of a decrease of about 60 per cent. in weight. This was owing to the gradual reduction of the importation of opium arranged between the Chinese and Indian Governments. The importation of grey and white shirtings shows a reduction of 25 per cent., the heavy arrivals at the end of 1913 causing stocks at the beginning of 1914 to be considerably heavier than in previous years. *T*-cloths also declined to a little more than half of what was imported in the previous year. Japanese drills and grey shirtings have gone steadily ahead; while Japanese *T*-cloths, on the other hand, have declined by about 30 per cent. Printed cottons have done satisfactorily in the year under review, a gain of 37 per cent. being recorded. The import of Russian prints has increased nearly 200 per cent.

During the year 1914 fancy woven cottons have done well, with an increase of nearly 150 per cent. The stocks in this class of goods were less than usual, and, the demand being good, new arrivals did not remain long in hand, and the prices obtained were well above the average. The total value of cotton piece goods imported in 1914 amounted to Hk. Tls. 100,000,000, or 3½ per cent. less than in 1913.

To a certain extent the trade was affected by the action of some importers, who gave instructions to hold back shipments during the earlier months of the war, while towards the latter end of the year steamer accommodation was scarce. In coloured goods, anticipation of a shortage in aniline dyes in producing countries had the effect of stimulating imports.

One of the outstanding features of the trade in dyed cotton goods during 1914 was the great popularity attained by figured cotton poplins. Large orders were placed for these goods during the latter half of 1913, and in some quarters fears were expressed that the trade had been overdone. But while other lines of dyed goods arrived to a dull and dejected market, figured poplins of suitable designs went steadily into consumption, and reports from the interior markets are to the effect that these goods continue to grow in favour. Plain black venetians have also increased their reputation.

Early in February an attempt to inaugurate piece goods auctions in Hankow was strenuously opposed by Chinese dealers in Shanghai, who seem to consider that they have a prescriptive right to be the middlemen for the purchase of piece goods for the Yangtze Valley. Their opposition was so strong and effective that the Hankow auctions had to be abandoned and the business still remains in Shanghai. It is claimed that approximately one-half of the Manchester piece goods sold in Shanghai are sold by auction.

The spring demand for piece goods was below the average, owing to the unsatisfactory state of the money market in the interior and nervousness as regards piracy in Hupeh. As the year progressed the position gradually got worse. This was caused by heavy imports and decreased deliveries. In June deliveries improved and orders decreased for a time, but there was no great improvement in the situation, and when the European war commenced the market was hopeless; huge stocks had accumulated, and deliveries practically came to a standstill in September. The difficulty of finance also militated against any improvement in the foreign import and export trade. The cessation of trade in Hongkong

gave Shanghai the chance of filling a few orders from the southern ports in September, but not sufficient to offset the cessation of trade in Shantung caused by the military operations at Tsingtau.

Velvets, velveteens, and velvet cords have declined by nearly 30 per cent. the falling off under this class being probably due to change of fashion. To this latter cause also may be attributed the drop in the trade in woollen piece goods during the last 10 years from a value of 2⅛ to 1 million taels, every item showing a heavy decline.

Metals show increases under iron angles, cobbles, and tinned plates, and decreases under iron sheets and plates and galvanized iron sheets, the latter item having declined 40 per cent. In the spring the metal market was fairly good, but the summer and autumn business was poor, and although prices improved considerably during the last quarter of the year, owing to low exchange and the war, very little business was done.

The trade in kerosene oil during the year 1914 was good, as will be seen by comparing the figures of 1913 and 1914. In the future imports of American oil into China are likely to increase even further, owing to the opening of the Panama Canal. Shanghai is largely used as a distributing centre, and therefore figures showing imports into Shanghai, even if taken over 12 months, are apt to be misleading.

The trade in artificial indigo and aniline dyes has suffered owing to the war in Europe, Germany, the principal producing country, having been cut off from the trade since August, 1914. A decrease of 40 per cent. is registered in the sugar trade. The prolonged drought experienced at the commencement of the year made transport of merchandise on the inland waterways difficult, and the depredations of White Wolf also had an unsettling effect tending to reduce sales. No Formosa or German beet sugar appeared on the market during the year.

There has been an advance of about 15 per cent. in the import of timber, accounted for by the phenomenal increase in building activity in Shanghai. Machinery has also shown considerable increase during 1914, a gain of nearly 150 per cent. on the results of the previous year being recorded.

The total value of re-exports to foreign ports in 1914 was Hk.Tls. 8,901,000—a decrease of 20 per cent. on the results of 1913. Opium decreased by 70 per cent., 902 piculs only having been re-exported in 1914, as against 2,880 piculs in 1913. The re-export of English jeans decreased by nearly 70 per cent. when compared with the figures of the preceding year; while, on the other hand, woollen and cotton goods, 95,000 pieces, showed a gain of over 400 per cent. on the figures of 1913. Other commodities, showing insignificant increases or decreases, call for no special remarks.

The total value of re-exports to Chinese ports shows only a slight falling off. Grey shirtings and sheetings, as well as Indian cotton yarn, have receded considerably. Wheat flour has declined by nearly 60 per cent., 92,000 piculs having been re-exported in 1914, as against 210,000 piculs in the preceding year. Seaweed and soda ash show gains of 17 and 32 per cent. respectively upon the results of 1913. There was a diminution of nearly 25 per cent. in the value of aniline dyes re-exported to Chinese ports in 1914.

Chinese Goods Exports, Abroad and Coastwise

The total value of Chinese goods exported abroad and coastwise amounted to nearly Hk. Tls. 233,000,000, a decrease of, roughly, Hk. Tls. 30,000,000 when compared with the figures of 1913. About one-half of the total is accounted for by re-exports abroad, and of the remainder over Hk. Tls. 37,000,000 represent the value of Chinese goods re-exported to Chinese ports, and a like amount that of those exported to foreign countries and Hongkong; while the balance, Hk. Tls. 48,000,000, may be taken as the value of Chinese produce of local origin exported to Chinese ports.

The exports of raw cotton have declined by 15 per cent. In 1914, 780,000 piculs passed the Testing House, compared with 850,000 piculs of the year before, a falling off of about 10 per cent. During the year ended 31st July, 1914, out of 944,000 piculs of raw cotton that came under the cognizance of the Testing House, the varying degrees of moisture proved to be as follows:- In 41 per cent., or 387,000 piculs, it was inside the 12 per cent., standard; in 57 per cent., 538,000 piculs, it was between 12 and 15 per cent.; in 2 per cent. or 19,000 piculs, it was over 15 per cent. and caused the rejection of the cotton. This shows a slight improvement over the previous year; but the deliberate watering of cotton still continues, to the detriment of the trade.

In May the Shanghai Cotton Anti-Adulteration Association resolved to reduce the moisture limit from 12 to 15 to 11 to 14 per cent., to take effect from the 1st September. The Chinese cotton dealers, not realising the eventual benefit to the trade, but only anxious for immediate profits, opposed the scheme, and as the reduction, so far as it concerned the export trade, could not be enforced without the sanction of the Chinese Government, the whole scheme had to be postponed until such sanction could be obtained. It might be mentioned here that the same Association has started an experimental cotton farm with a view to improving local cultivation methods.

The local cotton mills have exported nearly 700,000 piculs of cotton yarn, an improvement of 50 per cent. over the previous year's exports. Their export of grey piece goods at half a million is short of the previous year's figures by 100,000 pieces. The export of beans and peas has fallen off considerably, likewise hemp jute. Buffalo and cow hides also show diminution.

Shanghai mill flour again records an increase of 25 per cent., about 400,000 piculs having been exported during 1914. The local flour mills are said to have an output of 20 million bags yearly, of which amount 7 million bags are consumed locally and the balance is exported. The area in Kiangsu devoted to the cultivation of wheat is said to have increased, owing to the suppression of poppy growing.

Silk, being an article of luxury, was the first of China's products to feel the effect of the war. The trade with the continent of Europe ceased abruptly on the outbreak of hostilities. It was hoped, however, that the local filatures could be kept going by manufacturing for the American market. Prices started well; but when the European market was closed, prices on the American market dropped 20 to 25 per cent., thus making it unprofitable to manufacture raw silk at the current price of cocoons. Lyons reappearing on the market in December caused prices to rise slightly. With the decrease in price and the lowness of exchange, purchasers found themselves in a most favourable position.

The filatures, though temporarily assisted by an advance of funds from the Government, were still at a disadvantage. The truth is that the price paid nowadays for cocoons is too high, and it is to be hoped that this crisis in the silk trade may eventually have a beneficial effect in discouraging speculation in cocoons. The cocoons imported in 1914 were mortgaged to about 90 per cent. of their purchase price. When the American market dropped 20 per cent., not only the margin on the cocoons had run off, but also the value of the cocoons had become some 10 per cent. less than the amount advanced against them. Another difficulty that the trade in silk has to contend with is that there is not sufficient capital behind the steam filature companies. The figures for the year nevertheless show that the export of steam filatures only declined some 10 per cent. in the aggregate: the trade with the United States doubled, whilst that with the continent of Europe was reduced by one-half. Large decreases are, however, shown in native, re-reeled, and wild raw silk.

Black tea shows an increased export of over 40 per cent., but brick tea has declined by 21 per cent. The season for teas for European, Asiatic, and African markets (which generally are classed as Country Green) opened with high tael prices, and for a time the market was brisk; but upon the outbreak of war the demand was at once killed, and heavy losses were sustained by all holders. At the end of the year a limited business was being done on the whole at a decidedly lower range of values. The season will be remembered by all dealers in tea as a very bad one.

Inland Transit Dues Increase

The year's return shows an increase of Hk. Tls. 27,000 on the collection of dues under this heading in 1913. This is due mainly to the following reasons: transit passes have recently been taken out at Shanghai for cargo carried by river steamers to ports of call on the Yangtze; there was a sudden boom in transit passes issued for Shantung, owing to the closing of Kiaochow; and thirdly and lastly, a general increase took place in the demand for transit passes covering kerosene oil. During the year 35,130 passes in all were applied for, as against 26,597 in 1913, representing a gain of 8,533. Outward transit shows a decrease of Hk. Tls. 11,275, of which the reduction in cocoons alone accounts for Hk. Tls. 4,800.

The total tonnage of vessels entered and cleared during 1914 shows a decrease of about half a million tons when compared with the figures of the preceding year. For the first seven months of the year, up to the outbreak of hostilities, the tonnage of vessels entered and cleared showed an increase all round on the previous year. About the middle of August German vessels ceased to ply, and gradually, from one cause or another, the tonnage of other flags for foreign ports had sagged down to about one-half of their former level by the end of the year. The Canadian Pacific Railway Company's steamers and some of the P. & O. vessels were taken up at once by the British Government without being replaced. Other vessels were on the homeward berth and cargo was ready for shipment, but the difficulty of financing commercial transactions prevented cargo from leaving for European ports in any appreciable quantity during the first three months of the war.

In the autumn, however, the cargo for America exceeded the tonnage available, with the result that steamer owners gave the higher freight-paying commodities the preference. Later in the year, when finance was possible, exports abroad improved all round, but were still curtailed by lack of freight room available. During August the New York route *via* Suez Canal was practically closed, owing to the higher war risk premiums, and all cargo, which otherwise would have found its way to the United States of America by way of the Suez Canal, was sent across the Pacific, owing to the fact that it could be carried in neutral bottoms with little or no war risk. The London Conference found itself obliged to increase its rates by 20 per cent. over those of the tariff of 1914, and the New York *via* Suez Conference raised its charges 33⅓ per cent. higher than customary, besides insisting on the prepayment of all freights.

In October the Suez Canal Conference inaugurated a new service *via* Panama, the first boat to take this route being the s.s. *Indradeo*, the voyage occupying about 52 days. With the destruction of the *Emden*, shipment *via* the Suez became more regular and confidence was restored, notwithstanding the fact that Turkey joined the belligerent Powers in November and thereby threatened the security of the Canal route.

During the last five months of the year the tonnage on the Yangtze was fairly normal, showing an increase over 1913 in August, September, and October, owing to the fact that in 1913 Chinese shipping was suspended for a while on account of the rebellion. The coasting tonnage, though suffering for a short period at the beginning of the war, finished up with an increase for the whole five months after its outbreak. At the close of the year there was hardly sufficient freight room for the cargo offering from the river or coast ports.

In tonnage Great Britain again heads the list with a total of 7,848,371 tons for steamers

entered and cleared in 1914, showing an increase of over 100,000 tons when compared with the previous year's figures. Japan is next with 4,704,500 tons, a decrease, however, of 300,000 tons upon the results of 1913. German shipping, owing to the war, has receded over half a million tons. Increases in tonnage of American, Danish, Dutch, and Chinese vessels are recorded, the year on the whole being an excellent one for neutral shipping. In spite of everything, the grand total of shipping entered and cleared has not suffered to the extent that might have been expected, the falling off being only 630,000 tons.

According to the returns of traffic compiled by the Shanghai-Nanking Railway the year has been a good one in point of receipts and number of passengers carried, the latter being given as 5,400,000 and the former as $2,441,000. During each of the months of January, March, and April over half a million passengers were conveyed to and from various places on the line. The Soochow and Hangchow launch passenger traffic also shows important increases when compared with the results of 1913, an excess of over 221,000 passengers in all, or 25 per cent., being recorded, which speaks well for the continued popularity of boat travel. As has been stated elsewhere, the terminal stations at Shanghai of both the Kiangsu and Shanghai-Nanking Railways are to be connected in the near future, and, with the extension of the tram system to meet the new exigencies, a continued increase in passenger returns is expected.

Treasure Imports Decrease

The total value of treasure imported during the year was only *Hk.Tls.* 33,200,000, or about one half of the total amount reported in the previous year. This reduction is almost entirely accounted for by the big drop in arrivals from foreign countries, more especially Europe, which shows a falling off of over *Hk.Tls.* 17,000,000 when compared with the returns of 1914. Among other coins contributing to the general diminution were Japanese gold yen, which fell off considerably, only *Hk.Tls.* 800,000 being imported during the year. Silver bars and sycee also declined appreciably among imports from abroad, the total amount reported being less than one-tenth of what arrived in 1913. The only item of imported treasure which actually showed an increase was gold coin from the Straits Settlements. Arrivals from native ports of China totalled *Hk.Tls.* 28,500,000, registering approximately a gain of over 10 per cent. on the results of the preceding year.

The total value of treasure exported during 1914 was about *Hk.Tls.* 43,560,000, representing a balance in favour of exports over imports of, roughly, *Hk.Tls.* 10,000,000. Treasure exported to foreign countries shows a marked increase, the total amount reported being over *Hk.Tls.* 26,500.000, or nearly twice what was exported in 1913. In this America and Japan have participated to a considerable extent, the former contributing, in the return for gold bars, over *Hk.Tls.* 4,000,000 and the latter nearly *Hk.Tls.* 5,500,000. Silver bars shipped to Chinese ports dwindled down to one-quarter of the amount sent forward in 1913. Silver coins, however, have shown an upward tendency, about *Hk.Tls.* 2,000,000 being shipped in excess of the figures reported in 1913. There was a great demand from Hongkong for this article, an excess of *Hk.Tls.* 4,500,000 over the figures for 1913 being reported.

Importations of Opium

The total number of chests of certificated opium which arrived during 1914 was 472 (295 Malwa and 177 Bengal), whereas in 1913 1,055 chests, divided into 888 Malwa and 167 Bengal, came to Shanghai. Only small quantities arrived at a time, and during the summer months (June to September) none came forward. During the year the provinces of Hupeh, Honan, Chekiang, and Fukien were added to the number of those from which opium is excluded, leaving only eight provinces, viz., Kiangsu, Kiangsi, Shensi Kansu, Kweichow, Yunnan, Kwangtung, and, Sinkiang into which the drug may still be imported. The re-exports to Hongkong amounted in all to 829½ chests, compared with 2,759¾ in 1913, the reason for this reduction being alleged to be the fact that more favourable prices for the drug ruled in Shanghai during the year 1914. Only 46 chests were re-exported to treaty ports; of this amount, Kiaochow took four, and the remaining 42 were absorbed by Swatow—a decrease of 181 chests on the returns of the preceding year. The total quantity released from bond for local consumption amounted to 3,881 $\frac{25}{32}$ chests, as against 8,964 $\frac{28}{32}$ chests for the preceding year, or a diminution of 5,083 $\frac{3}{32}$ chests. During the last five years opium held in stock at Shanghai at the end of each year was as follows:—

	Malwa.	Patna.	Benares.	Total.
	Chests.	*Chests.*	*Chests.*	*Chests.*
1910	2,904 $\frac{23}{32}$	4,473	1,161	8,538 $\frac{23}{32}$
1911	6,389 $\frac{57}{64}$	7,634	2,228	16,251 $\frac{56}{64}$
1912	12,902 $\frac{85}{128}$	5,819	1,838	20,559 $\frac{85}{128}$
1913	5,674 $\frac{49}{64}$	2,631	1,459	9,664 $\frac{49}{64}$
1914	3,041 $\frac{23}{32}$	1,384	955	5,380 $\frac{23}{32}$

At the end of the year 644 $\frac{3}{32}$ chests of ticketed opium, which paid duty and likin at the old rate of Tls. 30 and Tls. 80 respectively, remained in bond. The following note has been supplied by Messrs. E.D. Sassoon & Co. on the opium trade in Shanghai during 1914. "During the first two months of the year there was a brisk demand and a large business was done at advancing rates, the highest figures touched being Tls. 6,830 per chest for Bengal and Tls. 6,675 to Tls. 6,800 for Malwa. In March, however, a reaction set in and deliveries fell off considerably, the market remaining quiet throughout the summer and prices receding by about Tls. 1,500. During the latter part of the year, the Chinese dealers having disposed of a large portion of their heavy holdings, and with improved deliveries, a better feeling prevailed, prices recovering their former level. Quotations on the 31st December were: Bengal, Tls. 6,830; Malwa, Tls. 6,675 to Tls. 6,925."

Fluctuation of Silver

One of the outstanding features of 1914 has been the enormous fluctuation in the price of silver. The highest and lowest quotations were 27¾*d.* and 22⅛*d.* respectively, the total amount of fluctuation being 5⅝*d.* A comparison of the fluctuations of silver during the last five years may be of interest here:—

	Highest Quotation	Lowest Quotation	Average Price
	Pence	*Pence*	*Pence*
1910	26¼	23 $\frac{3}{16}$	24 $\frac{11}{16}$
1911	26⅛	23 $\frac{11}{16}$	24 $\frac{19}{32}$
1912	29 $\frac{11}{16}$	25⅛	28 $\frac{1}{32}$
1913	29⅜	25 $\frac{15}{16}$	27 $\frac{9}{16}$
1914	27¾	22⅛	26 $\frac{5}{16}$

On the 25th May the Hart Memorial, a handsome bronze statue executed by Pegram, was unveiled by Mr. Raaschou, Consul General for Denmark and Senior Consul. Guards of honour were sent by the men-of-war in harbour.—In spite of the slackness of trade following upon the war, local industries seem to have flourished.

There has been an enormous increase in the demand for electric current for light and power. The Municipal Electricity Works supplied over 40,000,000 units in 1914, compared with 21,000,000 units in the previous year. The lavish display of shop signs lighted by electricity must have struck even the most unobservant. In no less than 1,500 Chinese houses electric radiators have been installed, and there seems to be an increasing demand for them. The use of small motors has been developed enormously, and there is hardly a rice mill in Shanghai now which does not possess one.

In the rebuilding of the various godowns destroyed by fire the latest type of automatic sprinkler has been installed, and it is hoped that this will largely minimise future risks.

GRAPHITE IN HONAN

A notable discovery of graphite has been reported from the Hengchoufu district of Honan province, according to a Shanghai resident who has recently returned from an inspection of the property which is part of an estate owned by his family. The region is rather difficult of access but the high quality of ore and the size of the deposit it is believed, will make its working commercially practicable.

The owner, who was educated in one of the Tientsin colleges, had some small knowledge of minerals and knew that coal measures existed some 25 li from his property. As the latter, however, was in a gneiss-porphyry region, he refused to credit the report of persons living on the estate that coal had been found in a vein nine feet thick. He called for samples of the coal and asked whether it would burn. The reply, before the samples came, was that this coal was "unripe" and therefore had not yet reached the stage of ability to burn.

The samples turned out to be not coal but graphite of excellent quality in that mica and pyrites were found to be totally lacking. The samples ran about 69 per cent pure amorphous graphite and the owner was induced to visit the deposit. He found that it was as reported, nine feet thick, a width which persisted over the 200 feet of ground on which he was able to trace it.

A shaft has been put down on the deposit which dips at an angle of 45 degrees and the quality and size of the deposit are maintained at depth, a sample from the whole face of the excavation runs 69 per cent of carbon. Owing to the absence of mica and pyrites, it is believed that the deposit can be worked by a fine grinding or all sliming process. Preliminary dressing experiments carried out on the ore extracted from the shaft show that it can be dressed to an average of 80 percent carbon which would permit shipments to be made even at the present low price of amorphous graphite. The only impurities are lime and sand with some manganese.

Other small veins were found in the district, but this is the only discovery of graphite in the workable quantity so far reported from the region. The coal measures 25 li distant are of anthracite and are reported to have about the same Northwest and Southeast strike as the graphite veins. The latter, however, occur in gneiss and porphyry while the coal is in the ordinary sand and limestone. The district is now being prospected for other minerals of economic importance. The Chinese idea of graphite as unripe coal is interesting as being exactly the opposite of that of the geologist who considers graphite as the highest member of the series that includes peat, bituminous coal, anthracite and graphite, so that in the modern view, graphite is really the ripest of all coals.

PLUMBAGO IN CEYLON

The Plumbago trade of Ceylon is undergoing a boom at present, and there is a steady rise in prices. The weekly statement issued by the Chamber of Commerce shows the exports from the island to the United Kingdom, between January 1st and October 4th last year as 36,004 cwts., but during the corresponding periods of this year the exports were 84,291 cwts.; whereas last year the export to Russia was only 79 cwt. this year she has already imported 27,935 cwts. The American demand also shows an increase of 23,614 tons. Almost all the firms which closed down shortly after the outbreak of war have been reopened, owing to the recent demand and prevailing high prices ruling. The prices on October 18 were just about double what they were in January of this year.

PANAMA-PACIFIC PRESS CONGRESS

The Press Congress of the World, an international organization, to meet triennially at the world's capitals, and to embrace workers in every department of journalism in all countries, was formed at the International Press Congress which met July 5th to 10th, 1915, at the Panama-Pacific International Exposition, in San Francisco. A brief constitution was adopted and officers were selected, two vice-presidents from each nation, an executive committee, a secretary-treasurer and a president. The office of the president was made the permanent headquarters of the Congress. The invitation of the Government of New South Wales to hold the first meeting of the Press Congress of the World in Sydney, Australia, in March-April, 1918, as presented by Mr. Niel Nielsen, Commissioner from New South Wales, was accepted.

The Congress, opened by an address by William Jennings Bryan, was large in number, important in personnel and program. The Honorary President was Virgilio Rodriguez Beteta, of Guatemala, Editor Diario de Centro America. The enrollment was 957 delegates, accompanied by 1,230 visitors, a total of 2,187 persons in attendance. This enrollment represented 29 nations and 46 states of the United States. Of the delegates 697, or three-fourths, were from outside California and 123 from outside continental United States. They included representatives of Australia, Austria-Hungary, Argentine, Cuba, China, Canada, Colombia, Denmark, France, Greece, Germany, Guatemala, England, Portugal, Ireland, Switzerland, Honduras, Italy, Java, India, Japan, Mexico, New Zealand, Spain, Sweden, Alaska, Hawaii and the Philippine Islands. The official proceedings will appear in the Book of the Congress to be published by a committee of which Jason Rogers, publisher of the New York Globe, is Chairman.

The constitution provides that the organization shall be known as the Press Congress of the World. Its object is to advance by conferences, discussions and united effort the cause of journalism in every honorable way. The sessions of the congress are to be open to the consideration of all questions directly affecting the press, but discussions of religion, politics and government policies will not be permitted. Workers in every department of journalism in every country who are engaged in promoting the highest standards and the largest welfare of the press are eligible to membership. The officers shall be an honorary president, a president, two vice-presidents, secretary-treasurer, an executive committee, consisting of the president, secretary-treasurer and five additional members chosen from the vice-presidents. These officers, with the exception of the honorary president, to be chosen by the executive committee, shall be elected at each session of the congress. The vacancies shall be filled by the Executive Committee upon recommendation of the countries affected. The time and place of meeting shall be determined by the Executive Committee. The constitution may be amended at any meeting under provisions to be established by Executive Committee.

The officers elected are:

President:	Walter Williams, Dean of the School of Journalism, of the University of Missouri, Columbia, Missouri, U. S. A.
Secretary-Treasurer	A. R. Ford, Secretary, Dominion Press Gallery, Ottawa, Canada.
Vice Presidents England.	Aaron Watson, Times, London.
	A. G. Gardiner, News and Leader, London.
Australia	J. W. Niesigh, Australian Journalist's Association, Sydney.
	L. C. McKinnon, Argus, Melbourne.
Japan	K. Sugimura, Asahi, Tokyo.
	I. Tokutomi, Tokyo.
Germany	F. Hartman, Hanover Zeitung, Berlin.
	H. F. Urban, Fremdenblatt, Hamburg.
China	Chen Chi, Peking Daily News, Peking.
	Yang Siu On, Peking Jih Pao, China.
India	S. Banerjee, Bengalee, Calcutta.
	Joseph Misrow, Hindu Press Association, Calcutta.
New Zealand	Robert Bell, Guardian, Ashburton.
	Mark Cohen, Evening Star, Dunedin.
Argentine	A. Davilla, La Prensa, Buenos Aires.
	Ernesto Nelson, La Nacion, Buenos Aires.
Honduras	Trolam Turcios, Tegucigalpa.
Salvador	Roman Mayorga Rivas, San Salvador.
Guatemala	Virgilio Rodriguez Beteta, Diario de Centro America, Guatemala.
Costa Rica	Luis Cruz Meza, San Jose.
Canada	John A. Cooper, Courier, Toronto.
	S. D. Scott, News-Advertiser, Vancouver, B. C.
Ireland	J. F. Charlessen, Ulster District of Journalists, Belfast.
Switzerland	H. Schoop, Swiss Press Association, Alten.
Portugal	Alfredo de Mesquita, Diario de Noticias, Lisbon.
	Manuel Roldan, Portuguese Press Association, Lisbon.
Russia	Serge Suremiatmkoff, Novoe Vremya, Petrograd.
Austria-Hungary	Dr. Acel Stahemberg, Hungarian Daily, New York City.
Cuba	J. A. Buchanan, Cuban Pavilion.
	J. L. Govin, El Mundo, Havana, Cuba.
Philippines	Martin Ocampo, La Vanguardia, Manila.
Italy	Dr. M. Borsa, 2 Secolo, Milan.
Denmark	Kristian Dahl, President, General Press Council.
	Havnegade 11, Copenhagen, K. Denmark.
	(Associate Editor of the "Politiken").
	J. Borgbjerg, Editor "Social-Demokraten" Copenhagen, Denmark.
Executive Committee.	
	Virgillo Rodriguez Beteta, Guatemala City.
	J. W. Niesigh, Sydney.
	Robert Bell, Guardian, Ashburton
	K. Sugimura, Asahi, Tokyo.
	H. Schoop, Alten, Switzerland.

The International Press Congress which resulted in the formation of the Press Congress of the World was one of a series of more than 850 congresses, conferences and conventions, during the Panama-Pacific International Exposition, held under the direction of the Bureau of Conventions and Societies of which Mr. James A. Barr is Director.

All Expositions, in their work of arranging for Congresses, have had a central theme. The central thought of the Chicago Exposition in its Congresses was given expression by the World Parliament of Religions. The central thought of the St. Louis Exposition in its Congresses was learning, as exemplified by the World's Congress of Arts and Science. The ten years since the St. Louis Exposition have been years of social, educational, economic and industrial unrest. Communities, states, nations, the world as a whole, have been groping for a solution of problems along all such lines. This is shown clearly by the multiplication of organizations, each seeking to solve some special problem from the local, state, national or world standpoint. In the sense of meeting the needs of the world, of giving the greatest possible help to states, national and international organizations, the central thought of the many congresses, conferences and conventions in and near San Francisco in 1915 is service, social, educational and industrial service.

As one result of the congress program was the International Press Congress. As the outcome of the International Press Congress is the Press Congress of the World, the purpose of which is the service of the highest interests of journalism and public service through the co-operation of pressmen everywhere, a contribution of large, permanent value to the world.

TRADE OPENINGS IN CHINA

Gold is found in many parts of the province of Szechuan, China, but not always in paying quantities. According to a recent report from Chungking, the most important mine in Szechuan that has thus far been opened is located at a very mountainous place called Maha, which lies in the south-western corner of this province about fifty miles north-west of Ningyuanfu. The Government is very anxious to develop the Maha mine to the fullest possible extent, and is now undertaking a thorough reorganization. Two Chinese engineers, who studied mining engineering in Belgium, are employing a corps of trained assistants and about 1,200 miners in the mining work at Maha. Both the Government at Pekin and the provincial authorities are giving them every encouragement, and there is reason to believe that this project will finally succeed. New mining machinery is needed to carry on this work to the best advantage. This opportunity is exceptional, inasmuch as the installation of a plant at Maha would doubtless result in further developments, since not only gold is found in the western part of this province, but antimony, iron, lead, silver, and copper also occur in considerable quantities, and will be mined eventually by up-to-date methods.

According to a recent official report, the district of Tzeliuching, which lies in the south-central part of Szechuan, some fifty miles north of Suifu, is the most important industrial centre in West China. This is true not only as regards its present state of development, but also as regards its potentialities and possibilities. Tzeliuching at no distant date will place larger orders for foreign machinery than any other city in this part of China. Machines for drilling new wells, for pumping up the brine, and for evaporating the salt are of first importance. Simple hoisting engines to supplant the water-buffaloes should enjoy a large sale. Gas-stoves and burners and engines using gas for fuel could also be introduced. As the salt-wells are operated night and day, there is an excellent opportunity for the sale of electric-lighting plants. Telephone-apparatus is also in demand, and mine pumps and machinery are needed in the coal-fields.

Writing on the resources of the Kaihsien district, the American Consul at Chungking, Szechuan province, says that while there is not much chance of introducing textile-machinery at the present time, if factories are started and the industry develops to any extent, there ought to be a market for cheap looms of simple construction. Mining machinery might even now be sold to advantage.

He also points out that, as the district about Chengtu develops, there will be an increasing demand for foreign machinery. Mining machinery is needed in the development of the region west of Kwanhsien, where lead, coal, silver, and copper deposits are said to be extensive. There is also a demand for machinery for the scientific refining of salt and sugar, and for the manufacture of paper, shoes, soap, candles, and many other articles. Modern sawmill machinery will eventually be introduced. Machinery for silk and cotton weaving could be used to advantage; much of the Thibetan wool that comes from Tachienlu to Chengtu could be made into fabrics at the latter city, where labor is cheap and water-power available.—*Journal of the Royal Society of Arts.*

TRADE CONDITIONS IN CHINA

[By V. Gonzales, Foreign Trade Adviser of the National Association of Manufacturers of the United States]

The peculiarities regarding China and the Chinese people, so far away and, after all, so little known to the outside world, make it extremely difficult to describe, in a short commercial review, what there is, and what there might be, for us in trade possibilities. Many a traveler, especially if he has been successful in his business missions, will tell wonderful stories of never realized opportunities, and many a book will describe, in something like fairy tales, Chinese wealth and poverty and romances of another race which seem so strange to us. What is here written, therefore, may appear very prosaic to the readers or hearers of such marvelous stories.

All of China is not yet open to direct commercial dealings with the outside world. Foreign commerce is restricted to 47 ports and 23 inland cities, and at these ports and cities it is the rule for resident foreign firms to employ a Chinese middleman, "known as a comprador," to pass upon all business contracts between the foreign and native houses. (The functions of the comprador will be described more fully further on in this article.)

China's Foreign Trade Relatively Small

The foreign trade of China appears somewhat duplicated by including Hongkong, which is a place for distribution and transshipment of imports and exports. Excluding Hongkong, the total amount of imports aggregated 570 million Haikwan taels, or about 395 million dollars American gold, in 1913. Exports were about 400 million taels, or about 280 million dollars. Considering that the population of China is very roughly estimated to be more than 400 millions, its imports are relatively exceedingly small—barely 5 per cent. of what it should be: taking the figures of our own trade as a basis. It represents less than 90 cents per head of population. Comparing this with other markets the smallness appears more evident. Latin-America, which is the most promising market for us, imports in all 1,200 million dollars; with a population nearing 75 millions, or about $16 per head of population. Canada imports about $90 per head of population; Australia $80 and New Zealand $100. The ninety cents per capita imported into China seems exceedingly small, but it must be borne in mind that China is barely in its infancy, so far as foreign trade is concerned, and that 400 millions of people, when brought to a reasonably consuming capacity by being productive themselves, will need to import a very large quantity of goods. If it consumed only one-half of what Latin-America consumes, or $8 per head, China would need more than 3 billion dollars of foreign merchandise; a share of which must be bought from us.

How long it will take China to arrive at this stage of commercial life no one knows, but the time is approaching rapidly. The influence of Japan, after the new treaty is put into effect, will probably awaken China quicker than the antagonistic European settlements so far apart and so different in many aspects of commercial and social conditions one from the other.

Of course, the low figures of China's present foreign trade are due principally to the financial inability of its people to purchase much outside of their own meagre production. The petty wages of the Chinese laborer are proverbial, and while in places open to foreign activities the pay is not so very meagre, in the largest portion of the country the equivalent of five cents American gold per day is none too low to accept as the average. Earning but five cents per day simply means that no foreign goods at all can be consumed.

China's Prospects of Development

The moment that the products of China gain a higher market value, the price of labor will advance, and with it the possibility of consuming more. It is a wheel which once started will not stop. Japan will likely have the first hand in this movement, and certainly will take advantage of it. The unjust pressure to which Japan has put China, in compelling acceptance of its terms of what outsiders consider a commercial and financial protectorate, may have had as its ultimate motive an expansion of Japanese industrial activities. But Japan cannot cover it all and there will be plenty of room for us also. However selfish it may appear, from a platonic point of view, to look coldly at a seemingly political imposition of a stronger country on another, we cannot help recognizing, when looked at from a practical standpoint, that Japan's move will be beneficial to our trade and to the world at large.

We Americans could not develop China commercially, financially or politically. Europe could not do it either and China has shown herself to be nearly helpless. Radical, and even antagonistic, differences of race, habits and tendencies, could never have been overcome; so that the new era to be started in China, under the influence of practically its own race, may be the best thing for all.

We must follow developments closely and be alert to opportunities which will present themselves. For this a thorough study of China and its resources is necessary. Japan will probably welcome our co-operation and not resent our desire to expand our trade, as long as we confine our activities to commercial lines.

We cannot undertake, in this short summary, to go very deeply into the study of Chinese problems, so we shall touch only the principal points of actual interests at this time.

Of the small Chinese foreign commerce our share is also very meagre. We sold scarcely 37 million dollars out of a total of 395 millions imported in 1913, and we bought just three millions more. Years ago our share and the volume of our business were larger, but we have so neglected the trade that we have been supplanted by the merchants of other countries, who have proved themselves to be, perhaps, more alert than we were.

The foreign purchasing power of China keeps pace, of course, with its exports, and with the contributions received from the Chinese who are living and saving in other countries. The foreign financial tribute is relatively small because foreign investments are not very important.

Exports are $280,000,000

The amount of exports, as mentioned before, aggregated about $280,000,000 American gold (403,305,500 Haikwan taels) distributed as follows:

Silk of all kinds	$73,000,000
Beans (soya) and cake	33,000,000
Tea	23,000,000
Skins and hides	16,000,000
Seeds and cake	13,000,000
Cotton	11,000,000
Oil (vegetable)	9,000,000
Tin	7,500,000
Wheat and other cereals	7,000,000
Coal (1,500,000 tons)	4,500,000
Wool	4,500,000
Eggs (363 millions) and albumen	4,000,000
Animals	4,000,000
Nuts	3,500,000
Straw braid	3,500,000
Meats (fresh, frozen, preserved)	3,000,000
Tallow	3,000,000
Bristles	3,000,000
Mats and matting	2,500,000
Medicines	2,500,000
Ramie (vegetable silk)	2,000,000
Fire crackers	2,000,000
Fruit (fresh and dry)	2,000,000
Paper	2,000,000
Timber	2,000,000
Tobacco	2,000,000
Chinaware	1,500,000
Feathers	1,000,000
Human hair	1,000,000
All others	34,000,000
Total	$280,000,000

Destination of Exports

Hongkong	$80,000,000
Japan	46,000,000
Russia	33,000,000
France	30,000,000
United States	28,000,000
Germany	12,500,000
United Kingdom	12,000,000
Italy	6,000,000
Korea	5,000,000
Belgium	5,000,000
Singapore	5,000,000
India	4,000,000
Portuguese China	3,000,000
Dutch East Indies	2,000,000
Siam	1,000,000
Indo-China	1,000,000
Philippines	500,000
All other countries	6,000,000
Total	$280,000,000

Imports Classified

Imports consisted of the following:

Cotton goods	$126,000,000
Sugar	25,000,000
Metal and manufactures	22,000,000
Oil	18,000,000
Rice	13,000,000
Dyes	12,000,000
Cigarettes and tobacco	12,000,000
Fish and products	9,000,000
Flour	7,000,000
Coal	6,500,000
Woollen goods	6,000,000
Leather goods	5,000,000
Machinery	5,000,000
Paper	5,000,000
Clothing	4,500,000
Matches	4,500,000
Vehicles	3,000,000
Timber	3,000,000
Medicine	3,000,000
Bran	2,000,000
Raw cotton	2,000,000
Electrical goods	2,000,000
Soap	2,000,000
Soda	1,000,000
All others	96,500,000
Total	$395,000,000

Sources of Supply

Countries of origin are as follows:

Hongkong	$115,000,000
Japan	82,000,000
United Kingdom	60,000,000
India	36,000,000
United States	26,000,000
Germany	21,000,000
Russia	16,000,000
Belgium	12,000,000
Singapore	6,500,000
Dutch East Indies	5,000,000
Portuguese China	5,000,000
France	4,000,000
Indo-China	3,500,000
All other countries	3,000,000
Total	$395,000,000

These figures, however, are rather confusing, because the trade with Hongkong is merely transitional; and the 80 millions of exports to and 115 millions imports from that island, really represent trade with other countries, which it is almost impracticable to define. Assuming that it has the same proportions as the direct trade, this would be in totals as follows:

	Imports from	*Exports to*
Japan	$114,000,000	$64,000,000
United Kingdom ...	84,000,000	16,000,000
India	50,000,000	6,500,000
United States	37,000,000	40,000,000
Germany	30,000,000	17,500,000
Russia	23,000,000	46,000,000
Belgium	17,000,000	7,000,000
Singapore	9,000,000	7,000,000
Dutch East Indies...	7,000,000	3,000,000
Portuguese China ...	7,000,000	4,000,000
France	5,500,000	42,000,000
Indo-China	5,000,000	1,500,000
All other countries .	6,500,000	25,000,000
Total	$395,000,000	$280,000,000

The war has naturally deprived China of the purchases of Germany, Belgium and France, which aggregated about 67 million dollars, and of about 33 millions of purchases by other countries, which will not buy so much as in normal times, because the ordinary demand for Chinese products has diminished greatly, where it has not ceased entirely. This means a shortage of 100 million dollars, or about 35 per cent. of China's foreign purchasing capacity. It is probable, then, that imports will fall in a like proportion, and that we shall loose about ⅓ of our present sales.

It is possible on the other hand that China may be called upon to supply other articles, not marketable before because of competition from other places of production; or that it can increase some of its own lines. The world's trade is so completely disturbed and channels of supply are being so altered, that nothing can be said positively one way or the other.

The Open Ports

The relative importance of the 47 open ports of China is shown by the following figures:

	Population	*Approximate Value of Imports*	*Exports*
Shanghai ...	651,000	$70,000,000	$58,000,000
Tientsin ...	800,000	50,000,000	25,000,000
Hankow ...	830,000	35,000,000	57,000,000
Kowloon ...	150,000	21,000,000	9,000,000
Canton... ...	900,000	21,000,000	42,000,000
Dairen... ...	20,000	21,000,000	28,000,000
Kiaochow ...	34,000	18,000,000	17,000,000
Swatow ...	70,000	15,000,000	9,000,000
Newchwang.	60,000	11,000,000	17,000,000
Changsha ...	250,000	9,000,000	6,000,000
Kiukiang ...	36,000	9,000,000	10,000,000
Lappa	10,000	8,000,000	4,000,000
Chunking ...	615,000	8,000,000	9,000,000
Manchouli ...	5,000	8,000,000	2,000,000
Amoy	115,000	7,000,000	9,000,000
Ningpo ...	450,000	7,000,000	6,000,000
Chinkiang ...	184,000	7,000,000	7,000,000
Foochow ...	625,000	6,000,000	7,000,000
Chefoo ...	55,000	6,000,000	10,000,000
Mengtze ...	10,000	6,000,000	8,000,000
Wuchow ...	40,000	6,000,000	3,000,000
Suifenho ...	2,000	5,000,000	9,000,000
Antung ...	34,000	5,000,000	5,000,000
Wuhu	100,000	5,000,000	7,000,000
Nanking ...	270,000	5,000,000	4,000,000
Kongmoon .	62,000	5,000,000	2,000,000
Samshui ...	6,000	4,000,000	1,000,000
Chinwangtao	5,000	3,000,000	3,000,000
Shasi	100,000	2,000,000	....
Hangchow...	600,000	2,000,000	7,000,000
Nanning ...	40,000	2,000,000	2,000,000
Kiungchow .	45,000	2,000,000	2,000,000

All the others are smaller, their aggregate import trade being less than two million dollars per annum. For the sake of completeness their names are here given in the order of their relative importance:

Tengyueh ... ... (population)	10,000
Yochow	20,000
Soochow	500,000
Pakhoi	20,000
Ichang	55,000
Wenchow	100,000
Lungchingtsun	20,000
Aigun	6,000
Hunchun	4,000
Sansing	22,000
Santuao	8,000
Szemao	15,000
Lungchow	13,000
Tatungkow	5,000

Harbin does not appear as importing foreign goods direct. The majority of these names are quite unfamiliar to us, and rarely, if ever, have we a chance of making a sale to any of these places, except in the very few ports with which we have direct communication. Then, all are not seaports; and it is doubtful whether, at this time, it is advisable to go hundreds of miles inland for trade, even to the large and important ports on the rivers. However, it is quite necessary to study conditions and possibilities of trade in all the places where there may be an opening. Differences of language, distances, and habits are a great hindrance to our possible expansion, but they must be overcome, otherwise our trade will improve but very slowly. Japan is our greatest competitor in Chinese trade and it has all the advantages, but it cannot supply all that China needs: even now when the latter's foreign purchases are relatively small.

The "Comprador"

Language, customs and peculiarity of trade must have been responsible for the creation of the "comprador"—a forced intermediary in almost all foreign trade in China. The "comprador" will take a commission for guaranteeing accounts and in most cases for actually selling the goods. Many of the best Chinese merchants do not, or will not, speak any other language than Chinese, and under these circumstances it would be absolutely impossible to do any business without the mediation of the "comprador." Some of these are people of very high financial standing, others not. They are at times engaged in business of their own, totally different from the one of the concern securing their guarantee. The "compradores" work, as a rule, on a commission basis only, although at times they are paid a salary and even office expenses. They know the buyers and assume all risks. As a rule, their guarantee is good, failures of "compradores" being very few.

There are "compradores" attached to foreign banks and they make the loans for them and guarantee them all over the country; to steamship companies and to almost all, if not all, the agencies and branches of foreign manufacturers and commission houses. In one word, there is practically a "comprador" attached to all and every transaction between Chinese merchants and foreign business men.

Currency in a Chaotic Condition

The chaotic conditions of its currency is a great inconvenience in Chinese trade. The different classes of taels confuse almost every one not perfectly familiar with them; and undoubtedly this difference is an obstacle to satisfactory trading. But after all, foreign goods are bought and paid for in gold, or its equivalent, and the local banks of China, as well as the agencies of foreign institutions, know well how to take advantage of the money derangement. Some Provinces are on a silver basis, fairly maintained, and suffer only because of the unsettled conditions of exchange, due to fluctuations in the gold price of the white metal. Other Provinces have inconvertible paper money and foreign exchange fluctuates much more. The new form of Government has not achieved any great improvement along these lines, except in theory. It seems that the intentions are to establish a gold exchange standard system, as in India. If this is done and all the money of China is put on a stable basis, business will be greatly facilitated.

The war caused more trouble; if those already existing could be increased. For banks, as a rule, restricted credit and made foreign transactions far more difficult than they were before. Lately, conditions have improved, although slowly, and China is adjusting itself to abnormality, as prevailing all over the world.

China Not an Industrial Country

China is not normally an industrial country, and it is not likely that it will become one for many years to come. It has a great agricultural and mining future; and it will pay better to follow those phases. However, there are a number of industrial establishments in a few of its principal cities, especially Shanghai, Canton, Newchwang, Harbin, Hongkong and a few others. The most important are cotton-spinning and weaving mills—48 in number, of which 38 are Chinese. There are 27 docks, shipbuilding and engineering works; 62 distilleries, breweries and aerated water works; 39 electric light plants; 41 flour mills; 18 glass and porcelain works; 19 match factories; 34 oil mills; 54 printing and lithographic mills; 20 saw mills; 25 soap and candle works; 18 cement and brick factories; 9 ice and cold storage plants; 3 steel and iron works and others numbering in all about 600 plants of relative importance.

Chinese Railways and Public Roads

There are few railroads, for such an extensive territory; but they now cover about 6,000 miles with 32 lines, there being about 2,000 miles more under construction and some 8,500 miles projected. Of the 6,000 miles open to traffic, about 3,000 are owned and operated by the Government, 300 are Provincial lines and 2 700 are privately owned. At the outbreak of the war China was indulging in a scheme for active railroad building which had been checked by its internal troubles. Although political disturbances have almost disappeared, at the present time it is difficult to raise money for this purpose. When it is possible for China to build its new lines, we shall probably have a large share in supplying materials. In the meantime, the maintenance of the present lines offers an opportunity. We have a share already but we may increase it.

China has a large mileage of high roads, many of them in good condition and suitable for automobiles; but the majority of them are wretched. The country does not have, as yet, a general purchasing capacity for buying and maintaining pleasure cars; and time is as yet of but too little value to attempt to save it in prompt delivery of merchandise and products. As a rule, streets are narrow and do not permit the extensive use of motor-cars.

Tariffs

The Chinese tariff gives no preference and establishes no disadvantages against our goods. With few exceptions the Customs charge a flat duty of 5 per cent. ad valorem and a small transit tax called "likin."

All manufactured goods have a market in China, the main needs being, however, for cotton goods—the sole fabric of the clothing for the poor people—oil for lighting purposes and some of the cheapest foodstuffs. Its population is being modernized gradually, and better homes and clothes are increasing in demand; but slowly.

Chinese finances have always been in a turmoil, only the custom taxes having been under good management. Its foreign debt exceeds 500 million dollars, which, if considered in proportion to the population, would seem very small, not over $1.25 per head, but it is quite heavy, if the general revenues of the country are considered, and these amount to only about 200 million dollars.

Banking

There are Chinese banks and agencies of foreign banks. There is no doubt that the latter will give the better attention to the collection of foreign bills, it being easier to communicate with them. The Hongkong and Shanghai Banking Corporation is one of the financial institutions represented at practically all important centers; as is, also, the Chartered Bank of India, Australia and China. The International Banking Corporation (American) is not yet widely represented; but if the development of our financial intercourse justifies, it will, no doubt, promptly extend its facilities.

Shipping from and to China has not been particularly difficult. Before the war there were no less than 16 different lines making regular trips. During the last twelve months or more, this intercourse has been more or less disturbed, but sailings from both our coasts are fairly regular now.

Foreign China

The foreign possessions in China are:

British..................Hongkong.
French..................Kwan Chau Wan.
Portuguese..............Macau.
Japanese.................Formosa, Kwantung and lately Kiao Chao captured from Germany.

By far the most important of all is Hongkong, which for many years has been the key to the Far Eastern trade and practically its banking and commercial center. This colony comprises the Island of Hongkong (capital, Victoria), ceded to Great Britain in 1841; the peninsula of Kowloon, ceded in 1861, and the extension territory and islands of Lan Tao and Lamma, leased for ninety-nine years in 1898. In all, it covers an area of 400 square miles (the Island of Hongkong, 29), and has a population of about 500,000, of which only 8,000 to 9,000 are Europeans.

The importance of the trade of Hongkong can be realized by the fact that in 1914 there entered the port 4,236 foreign built steamers, 4,213 river steamers, 3,403 launches and 27,463 Chinese junks, engaged in foreign trade, with a total tonnage of 36,750,000 tons.

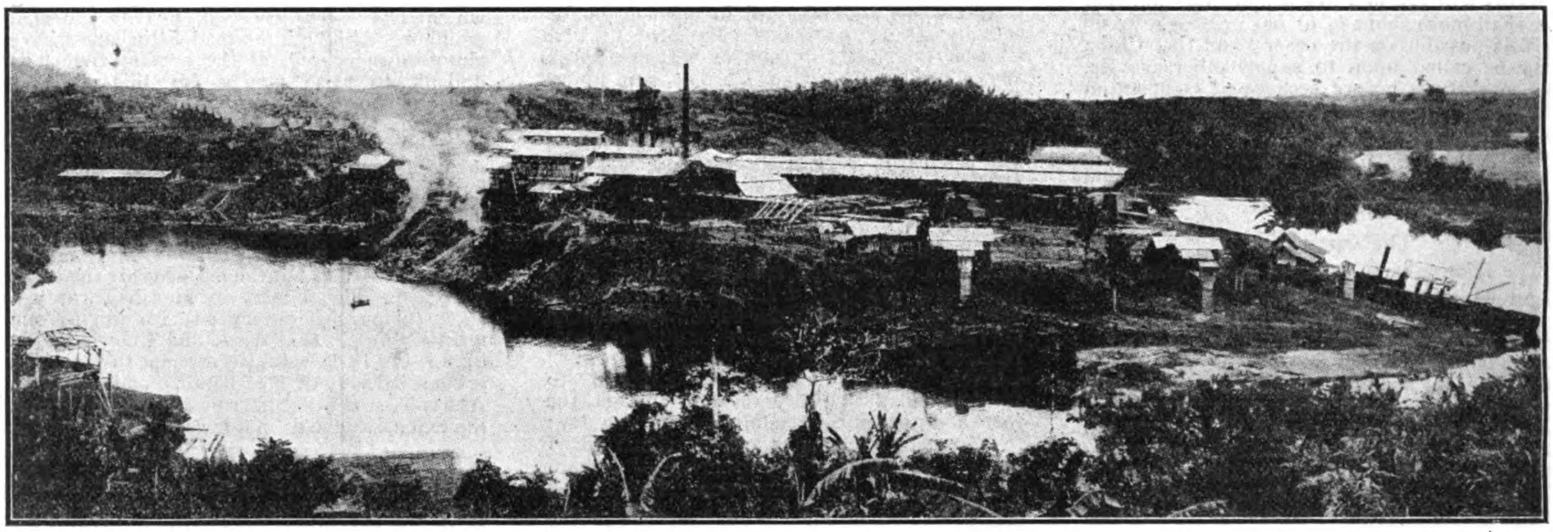
Hongkong is a free port and is separated from the mainland by a narrow strait, the Lyemoon Pass.

The money of Hongkong is the British silver dollar of fluctuating value. It is the only British colony where silver is the standard, and this is probably due to the fact that China is also under the same monetary system. The banking business of Hongkong is enormous, and connections with all the world are most satisfactory. All the banks doing business in the Far East have branches there. Many Chinese firms doing a large business in the main land, as well as with Japan, India, the Straits Settlements and other Asiatic countries, have offices and warehouses there. Hongkong may be considered as the most important market of China.

The French territory consists only of a parcel of land on the southern coast of Kwangtung Province and two islands in the bay; in all about 200 square miles, with a population of 170,000. The port is free, that is, no import duties are charged, and the total volume of trade amounts to 3½ million dollars. It is under the administration of the Governor of Indo-China.

The Portuguese colony of Macao (or Macau) was the first European settlement in Asia—1577. Its area is only four square miles and it has a population of about 80,000. It was a very important distributing center until superceded by Hongkong. Its transshipping trade, however, amounts to some 18 to 20 million dollars per annum.

The Japanese possessions in China are (1) the Island of Formosa (Taiwan), ceded in 1895; (2) the territory of Kwantung (southern part of the Liaotung peninsula), formerly leased to Russia, the trade of which is described as being Japanese.



Mill of Insular Lumber Company on Island of Negros

SUCCESSFUL AMERICAN-PHILIPPINE LUMBER CO.

There is at least one sawmill in the world that is financially successful in these times of lumber market depression. It is the property of the Insular Lumber Company, located three hundred miles south of Manila on the Philippine island of Negros Occidental. It is American-owned and American-managed. Its export grades are eagerly sought in world markets particular about high-class finishing woods. The handsomest office building in Canada—the Royal Bank of Toronto—is finished with lumber from this mill. Its contractor ran short and was compelled to use a few strips of genuine African mahogany in completing the job. Woodworking experts are unable to tell the difference between the Philippine red lauan and the real mahogany.

In New York, the export product of the Insular mill not infrequently brings as high as $120 a thousand feet. Lower grades are readily sold at reasonably profitable prices in local Philippine markets, which require upwards of 100,000,000 feet of lumber annually.

The Insular Lumber Company is controlled by New York men. The president of the company is W. P. Clark, of Olean, who also is the president of the famous Clark Bros. Company, builders of high-grade sawmill machinery. W. P. Reid, of New York, is secretary of the company; C. E. Sherman, of New York, is treasurer; and A. E. Edgcomb, of New York, is the general sales manager in the United States.

The company's timber concession on Negros Occidental is sixty-nine square miles, averaging 25,000 feet of timber to the acre. The first mill was established in 1907. It succeeded moderately. Any sawmill with Clark Bros. equipment will succeed from the manufacturing standpoint. However, the owners were not satisfied with general results. They came to the Pacific Northwest for a man that could get those results, selecting Walter Macfarlane, then manager of the Western Lumber Company, of Aberdeen, Wash.

Mr. Macfarlane went to the Islands in the fall of 1910. In 1911 the Insular Lumber Company's mill was practically rebuilt, giving it a capacity of 75,000 feet of lumber in ten hours, which is equivalent to about twice that capacity in a Pacific Northwest mill, owing to the fact that Philippine logs, like all hardwood logs of the tropics, only yield lumber on about fifty-five per cent of the log scale.

The mill is equipped with Clark Bros. machinery, including a double band head rig and a band resaw on the chains. In mill and logging operations the company employs eighteen white men and eight hundred natives and Chinese. In the woods operations the company has nine miles of logging road, four Shay geared locomotives and thirty Seattle Car & Foundry Company logging cars. Seven Washington Iron Works donkey engines handle the primary logging operations.

Philippine woods are making very satisfactory headway in the matter of market extension. Last winter the native woods were successful in bids submitted for supplying the United States army requirements in the Islands. This was a $50,000 contract figuring something like 2,430,000 feet of lumber.

Some idea of recent marketing developments for the Philippine native woods may be gained from the fact that in 1913 the exports were valued at about $236,000 and in 1914 these exports carried a value of $376,000.

The lumber markets of China are becoming more and more interested in Philippine lumber, especially in the Hongkong district, where the Philippine product has been brought into sharp competition with Singapore and Borneo woods and has won a place in the trade through sheer quality.

The forest area of the Philippines comprises about 40,000 square miles, or about one-third of the total area. Seventy-five per cent of this forest area, say 30,000 square miles, is covered with forests in which the members of the dipterocarp family predominate. The dipterocarp is a genus of tall timber ranging from India to the Philippines, and commonly divided into three tree groups, namely, the hard and durable yacals, the apitongs and the lauans. The apitongs and lauans furnish by far the greatest amount of timber. From many standpoints the dipterocarp family is to the Philippines and Orient what the pine and oak families are to the United States.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Shasi-Singyi Railway.—According to the report of engineers despatched by the Communications Department to survey the route for a railway starting from Shasi in Hupeh and extending to Singyi in Kweichow, after passing through Hunan, the entire line will measure 655 miles, with a branch from Changteh to Changsha extending 105 miles. The following is the distance in miles between important towns:

Shasi—Lichow, 50; Lichow—Changteh, 40; Changteh—Shenchow, 110, Shenchow—Fenghuangting, 45; Fenghuangting—Yuanchow, 35; Yuanchow—Huangchow, 30; Huangchow—Enchow, 30; Enchow—Chenyuan, 30; Chenyuan—Huangping, 30; Huangping—Pingyueh, 30; Pingyueh—Kweiyang, 60; Kweiyang—Anshun, 60; Anshun—Chenning 20; Chenning—Chenfeng, 35; and Chenfeng—Singyi 40.

Shantung Line Makes Money.—The monthly income of the Shantung railway line which was 50,000 to 60,000 yen at the time when it was placed under Japanese management, has now been increased to 200,000 yen, reports the Yorozu. When the monthly expense of 170,000 yen is subtracted there is a profit of 30,000 yen. The Japanese authorities at Tsingtau are endeavoring, it is said, to repair the tracks and rolling stock and will try to make the line pay better than it did under German management.

Kirin-Changchun Railway.—The following statement regarding the Changchun-Kirin Railway, control of which has been given by China to Japan, is from the Japanese press and outlines contemplated improvements:—

Years ago, the South Manchuria Railway Co. approached the authorities of the Kirin-Changchun Railway to establish through traffic. The Chinese were not inclined to entertain the proposition. It was thought the Kirin-Changchun Railway, extending only 80 miles, would be made a cat's paw to the trunk road. But when through traffic is established, many things must be improved, including the Kirin-Changchun coupling apparatus which is different in style and in a position that makes coupling with the rolling stock of the S. M. R. Co. impossible. Most of the passenger cars are too old for service.

At present, the line has 13 engines and 262 passenger and freight cars.

The staff of the company consists of 5 Japanese and some 180 Chinese, rather too many persons for a short railway, and salaries are higher than those paid by the Peking-Mukden railway.

The railway revenue shows a monthly surplus of about $17,000 and in the future when places along the line develop, the profit should greatly increase in proportion. The company's receipts for the first five months this year were in yen:

January, Y67,865; February, Y60,125; March, Y79,625; April, Y28,795; May, Y54,080.

In April the income was decreased owing to floods.

The railway is completed all but the tunnel at Tumen Mountain.

The road is substantially built and the top of the embankment is 18 feet wide at the narrowest point, whilst the width of a cutting is fifty feet. Bridges are much more strongly built than the requirement of the Peking-Mukden Railway, so that they can fully stand the weight of a train. Sixty pound rails are used, on which an engine weighing about 80 tons speeds at the rate of 28 miles per hour on an average. They must be changed to heavier rails if traffic increases, but will prove serviceable so long as they do not carry an engine heavier than 90 tons. Ballast is being constantly replenished, and the road-bed is steadied by degrees.

SHIPPING

Dutch Line's New Service.—The San Francisco Chamber of Commerce has just informed the Bureau of Foreign and Domestic Commerce that, as the result of nearly a year of endeaver on its part, the Java-China-Japan Lijn, of Amsterdam, is to establish a monthly service of first-class cargo steamers between Batavia, Java, and San Francisco, the new service to start with a sailing from Batavia on December 15. Steamers will load at Batavia, Cheribon, Samarang, Soerabaya, and Makassar, thence proceed to Manila, Hongkong, and San Francisco. The first vessel of the new service will reach San Francisco in February. The call at Manila is said to be the result of an invitation extended by the Manila Merchants' Association and seconded by Governor General Harrison.

Foochow Shipping Returns.—The total number of steamers entered and cleared at Foochow for the quarter ended June 30, 1915, was 389 ships of 264,748 tons, an increase of ten ships but a decrease of 39,603 tons over the same quarter last year. Of the total 39.3 per cent. were British against 33.6 per cent. the year before, 36.8 per cent. Chinese against 26.8 per cent., and 24.6 per cent. Japanese against 24.2 per cent. the year before.

New Chinese Line Starts.—That the first steamer of the new Chinese Pacific line has sailed from San Francisco, was the information conveyed in a cablegram to the bureau of posts early in November. The cable announced that the China had sailed from San Francisco on October 30 with 650 bags of U. S. mail for Manila.

On October 14 the Daily Bulletin received a cable from Washington announcing that the Chinese company had purchased the China from the Atlantic Transport Company, and that she would leave San Francisco on the Pacific Mail schedule of the Manchuria, October 16. This sailing was postponed to the schedule of the Nile, which was due to sail from San Francisco, October 30, via Honolulu and Japan, and to arrive at Manila November 25 sailing on the return trip to San Francisco via Hongkong, Japan ports, and Honolulu.

The Chinese papers report that some Cantonese merchants are preparing to subscribe stock in the new Chinese steamship company of which a prospectus has been published stating that capital of the new concern will be 5,000,000 yuan, in 100,000 share of 50 yuan each.

Pacific and Eastern Line.—According to a despatch from San Francisco, the Pacific and Eastern Steamship Company has been registered at Albany, N. Y. The company, under the American flag, will maintain a Pacific navigation service with the co-operation of Chinese. The capital of the concern is G. $2,000,000, one half of which Americans will take up and the other half will be subscribed by Chinese. Mr. John Mitchel has been nominated president, while among the Chinese directors are one adviser and two secretaries to the Chinese Legation. Mr. Hsia, former Chinese Minister to Washington, is one of the big shareholders. The Chinese Legation is said to have stated that the Chinese government was connected with the new concern. Since the Pacific Mail Company retired, much more criticism has been heard against the government in connection with the Seamen's Law, and the administration welcomes the formation of the new company. The Ship Purchase Act will be again introduced, and if the new company be placed under unfavorable conditions, after the said act is passed, the government will take measures to remedy this, it is said. Although the president of the company denies that it has any relation to the government, it is considered a fact that the United States government is unofficially connected with the formation of the company.

French Mail Adds Ship.—The Messageries Maritimes is putting a new steamer, the Athos, on the line from Europe to Japan and China via Saigon and Haiphong. The Athos was scheduled to leave Marseilles Nov. 10 on its maiden trip. It is of 19,640 tons displacement and 11,000 tons cargo capacity, has accommodation for 110 first-class, 96 second-class and 110 third-class passengers and an average speed of 14 knots.

Philippines Plan Tonnage Tax.—The tax committee of the Philippines has recommended the passage of a law which provides for the collection at all ports and places in the Philippine Islands of navigation and port charges. On vessels arriving from non-Philippine ports a charge of fifteen centavos (P.0.15) per net ton as expressed in the vessels' national certificates of registry. On the entry of a vessel from a port or place not in the Philippine Islands loading or discharging cargo which is less than the net tonnage of the vessel, dues of forty centavos (P.0.40) per thousand kilograms may be imposed, at the option of the master or consignor or consignee of the cargo, in lieu of the tonnage tax above prescribed. On the entry of a vessel only to discharge or take on board passengers and their baggage, the tonnage tax above prescribed shall not be imposed. Exemptions are vessels belonging to or employed in the service of the Government of the United States or foreign government vessels not engaged in trade; vessels in distress and yachts belonging to an organized yacht club of the United States or of a foreign nation which imposes no tonnage or equivalent taxes on American yachts. It is calculated by the board that P.200,000 will accrue to the Philippine government annually by the imposition of tonnage dues.

Siam's Queen to Have Yacht.—A motor yacht is being built at the Bangkok docks for the use of the Queen Mother. The vessel is 55 ft. in length and 11 ft. beam and will be propelled by two sets of four cylinder motors.

Japan's South Sea Service.—The new South Sea service will be opened shortly by the South Sea Trading Company under the

protection of the Imperial Navy. The first liner to start, the *Miyoshino Maru*, 4,200 tons, will ply between Yokosuka and Truck Island and the second boat, the *Heijun Maru*, 1,691 tons, between Truck Island and the Marshal Group, while the third boat, the *Koyo Maru*, 1,422 tons, will serve Truck Island and the phosphate fields of Angaur Islands.

Navy Increase in Japan.—At the coronation naval review which was held at Yokohama December 4, the new battleship Fuso and 130 warships with a total tonnage of 600,000 participated. Since the first naval review was held at Kobe in 1890, the following figures of the past six reviews will show the progress of the Japanese navy.

Year	Warships	Tonnage
1890	30	34,082
1900	49	129,601
1903	60	213,621
1905	166	302,650
1912	124	403,701
1912	113	443,830

Japan's New Battleship.—The launching of the battleship Yamashiro, recently built in the Yokosuka naval dock yard, was successfully carried out on November 3. Prince Hiroyasu Fushimi, represented the Emperor in the ceremony. A large number of high naval officers and invited guests to the number of 1,000 witnessed the ceremony in the yard. The Yamashiro was started November 20, 1913. Her displacement is 30,600 tons, length 673 feet, width 94 feet, depth 50 feet, draught 28½ feet. She will carry 12 14-inch, 16 6-inch, 19 3 inch and other guns.

The battleship Fuso, which has been undergoing trial for some time at Kure, was placed in the First Squadron early in the month.

Yokosuka Naval Dock Open.—The Yokosuka naval dock, the largest in the Orient, is now completed and will easily accommodate any battleship of 30,000 tons. The completion of such a large dock in Japan is counted as a material addition to Japanese naval power.

Progress of Japan's Shipping.—According to a recent investigation, Japan's progress in shipping in the last ten years is as follows:

Years	Number of vessels	Tonnage
1905	1,390	932,061
1906	1,492	1,032,742
1907	1,574	1,108,092
1908	1,618	1,152,575
1909	1,653	1,189,957
1910	1,703	1,224,091
1911	1,854	1,375,083
1912	1,981	1,430,329
1913	2,072	1,513,941
1914	2,133	1,577,025

RIVERS AND HARBOR

Conservancy Work in Hunan.—The Director-General of the National Irrigation Bureau and the Acting Governor of Hunan, have memorialized President Yuan Shih-k'ai on the conservancy work in Hunan as follows:

Hunan has hitherto been know as a 'water province;' and the water of Hsiang, Chu, Yuan and Feng rivers flows into the Tung Ting Lake, which also receives the water of other streams and rivulets. Formerly Taiping and Chaohsien formed the outlet of this Lake; and in the 3rd Year of Hsien Feng and the 9th Year of Tung Chih, the embankments of Aochi and Sungchu rivers respectively were washed away. Since then the water of the lake has rushed down from the northern part of the lake at four points. Many islets have been formed, and the inhabitants have erected dams to prevent inundation. Through the long neglect of conservancy works the people of this province have suffered constantly from the flood. When Chen Chun-ming was Governor of Hunan, he requested the Viceroy of Hupeh to send delegates to his province to devise means to save the province from flood disasters. Wang Nai-chen, Wei Ching-hsiung, Wu Pingheng and Ping Chun, were delegated for the Conservancy work and decided that the river beds should be dredged, adequate outlets provided for the water of the Lake, the dykes to be strengthened. Soon after they began dredging with foreign machinery, the Revolution broke out. As Hunan has suffered more from floods than other provinces we have therefore made special plans to save the inhabitants. Our plans are similar to those drawn up by the delegates. With regard to the dredging of rivers, we have arranged that the rivers in Hupeh province should be dredged by the authorities there, while those in Hunan as well as the repairs of the Lake, water-courses and embankments of rivers should be done by Hunan province.

In order to secure success it is imperative that a man of experience in Conservancy work should be appointed to draw up plans for the conservancy work of the whole province. Wei Ching-hsiung, former Perfect of Yuehchow District, who drew up the Conservancy plans of this province in former days, was asked to submit a detailed plan for the irrigation of this province. When his suggestions were sent to the National Irrigation Bureau for approval they were admitted to be practical and should be at once put into execution. We recommend that he be appointed Chief of the branch irrigation Bureau of Hunan. In Yuehyang and other eight hsiens at the vicinity of the Great Lake, there have been quarrels among the inhabitants over the lands affected by the flood; and we have decided that the title deeds of the land owners be ratified by the officials at the payment of 4 copper cents for each mou. It is expected that the inhabitants of these districts will be glad to pay this small amount of sum in order to save themselves from endless quarrels. But when the work of dredging river beds begins, more important points shall first be attended to and other means be raised to meet new expenses.

The President replied by appointing Wei Ching-hsiung and instructed the Ministry of Interior to take note of the memorial which he approved.

Huai River Conservancy.—Ni Tutuh is carrying through part of the Huai River Conservancy scheme, according to the North China Daily News. He is largely using impressed labour, five families supplying one workman. It seems that he is only trying to drain the lowlands in the extreme north of Anhui. It is said that he has 45,000 men beginning work now. Part of the work is reopening the "Crying River" which was cut by China's typical tyrant, Sin Yang-ti. It is in this region that the American Red Cross proposes to expend many millions of dollars in a conservation scheme, details of which were given in the Far Eastern Review for April, 1915.

Moji Harbor Work Lags.—According to a report from the British Consul at Shimonoseki, the improvement of Moji harbour and the fairway of the Shimonoseki Straits progresses more slowly than was originally estimated, owing to insufficiency of funds. The dredging of the harbour, however, made considerable progress in 1914, and a new section, deepened to 28 feet, was added to the available anchorage space. Work has been begun on the removal of the Moji Shoal, which constitutes a serious obstacle to the navigation of the Strait and the manœuvring of vessels in the harbour. It is estimated that two years will elapse before the work is completed. The general scheme provides for the deepening of the harbour and fairway to a minimum of 32 feet; upon the completion of the work ships of any size will be enabled to anchor with comparative safety, and the present difficulties of navigation due to the rapidity and irregularity of the tidal currents, and the varying depth of the Straits, will be largely removed. A long-needed improvement was added on the completion in 1914 of the new railway wharf, the ferry steamers between Shimonoseki and Fusan now coming to the wharf. On the completion of the improvements to the terminal station the trains will run alongside the steamers. A new dry dock, under construction since 1913, has been opened on Hikoshima Island, at the western entrance to the Straits. The dock is equipped with up-to-date repairing plant, and is 260 feet in length by 56 feet in breadth on sill. It can accommodate vessels up to 6,000 tons gross.

BUILDINGS

Manila's New Post Office.—A bill providing means by which the government may erect a new post office in Manila has been introduced in the Philippine assembly and the public works appropriation, it is learned, will carry an item of half a million pesos for that purpose. The bill as introduced, authorizes the loan from the postal savings bank reserve of P600,000 for the post office building, the loan to be repaid from insular funds in 10 equal annual installments of P60,000 each, with interest at four per cent per annum. The measure also provides that the insular government may accept such a loan from the postal savings bank. An effort will be made to have the bill reported for final action at an early date. The need for a new post office building is so well recognized that there is but little doubt that funds for its erection will be provided.

Manila Chinese School.—Papers of incorporation have been filed in Manila by the Chinese School Building Association, organized with a capital stock issue of P300,000.

The new organization will take direct charge of the plans laid some time ago for the establishment of a modern and fully equipped school for Chinese children in this city, replacing the structure near the Meisic station which is no longer adequate for the needs.

The incorporators include a number of the most prominent Chinese residents of the city of Manila, among them being Carlos Palanca, Benito Siy Cong Bieng and Antonio M. Heras Lim Hing. Of the total capital stock, P125,000 has already been subscribed by the incorporators, and P31,650 paid in cash.

Iloilo Custom House Bids.—Bids were opened at the bureau of public works on November 5, for the construction of the new Iloilo custom house, six Manila firms presenting tenders. It is expected that other bidders from Cebu and Iloilo will have to be reckoned with, as tenders were received there, and the figures of these bidders have not been announced as yet. The firms were asked to submit figures for the construction of the custom house with either cement tile or Spanish tile roof, and the first amount set after each name is for the former style of construction:

Tan Samco P254,500, P256,000, 540 days.

City Construction Co. P362,314, P361,496, 350 days.

Gotauco P279,495, P279,495, 450 days.

John Gordon P260,724, P260,724, 400 days.

S. C. Choy and Co., P278,460, P276,870, 550 days.

E. T. Yu Chengco P257,000, P256,500, 400 days.

Hankow Bank Building.—The Hankow branch of the Bank of China has signed a

contract for the erection of a new bank building in Hankow, at the cost of $40,000 to $50,000 gold. The architects are Atkinson & Dallas (Ltd.), Hankow, and the material is to be brick and reinforced concrete.

New Zealand Building Notes.—Matters in the building line are very greatly improving now that money is more plentiful, and the outlook in Auckland is favorable. This will call for additional builders' hardware, corrugated iron, roofing, etc., from the United States, because European manufacturers are unable to fill orders in most of these lines. W. C. Johns & Sons have just taken the contract to erect buildings for the Myers Park Kindergarten School at a cost of $27,807, according to plans drawn by Chilwell & Trevithick. W. E. Hutchinson has the contract to erect a five-story and basement office building, at a cost of $53,531, after plans drawn by Mr. A. B. Herrold. This structure is to be fireproof and up to date. Three stories are being added to the three-story John Court Building, at a cost of $100,000. This will make an up-to-date six-story commercial building about 100 by 100 feet, to be used as a department store. The foundations are being put in for a four-story brick addition to the Auckland Farmers' Freezing Co.'s plant located in this city, to cost $75,000, after plans drawn by Chilwell & Trevithick. This structure will contain the latest provisions for cold storage, such as insulated floors, walls, etc. One of the suburbs of Auckland proposes to expend $291,990 on building new streets within the next year. This suburb has just completed a $291,990 drainage system, and many fine residences are being erected and under contemplation in that section.

Tokyo Y. M. C. A. Building.—The most complete building in the Far East devoted exclusively to physical education will be erected within a year in Tokyo. This will be the new gymnasium of the Tokyo Young Men's Christian Association. Word has been received from New York stating that funds for the new gymnasium are released. The campaign for the association's new auditorium also is nearing conclusion, the two projects calling for a total expenditure of 105,000 yen.

Only the funds for the gymnasium are as yet available and the estimates and specifications are already under way. The auditorium will adjoin the gymnasium and will be on the site of the present auditorium.

Of the entire amount 45,000 yen has been contributed by the association's supporters in Japan. The whole fund will amount to about 150,000 yen.

The gymnasium will cost, including fittings, 55,000 yen. It will be built of reinforced concrete, faced with brick, and will measure 100 by 64 feet. The plans provide for a swimming pool, the first of the kind in Japan, which will be the most striking feature of the whole plant. No expense will be spared to make this plunge absolutely up to date, hygienic and attractive in every respect. It will be of standard size, 60 by 20 feet, from 8 to 4 feet in depth.

ELECTRIC LIGHT AND POWER

Chefoo Electric Lighting.—Chefoo is now splendidly lighted. About 1,000 poles are in use with lights of 16, 25, 50, 100, and 200 candlepower. Outside the harbor there are three 1,000-candlepower lights. Consumers are classified as meter consumers, regular consumers on monthly contract, and occasional consumers. The charges are $0.35 Mexican per kilowatt-hour, with $0.50 Mexican minimum charge per lamp per hour. $0.50 Mexican per meter per month. The charges per lamp on monthly contract, ranges from $0.60 Mexican for 5 candlepower, $1.20 for 16 candlepower, $2.50 for 50 candlepower to $20 for 1,000 candlepower. The Chefoo Electric Lighting Co., was formed on January 16, 1913, with a capital stock of $100,000 (Mexican) subscribed principally by Chinese. It was duly registered with the board of works at Peking on May 27, 1913, and received its charter on that day. The plant contains the following machinery: Two complete sets of 100-kilowatt alternators, consisting of two alternators, 3-phase, 50-cycle, 3,300 volts; two vertical compound engines; three Babcock-Willcox boilers; two jet condensers and pumps; two boiler-feed pumps, purifier and heater (combined); and the necessary switchboard. The manager and assistant manager are Chinese, but the chief engineer, his assistants, and electricians are Japanese. The company has spent about $50,000 in material and for erecting poles, etc., throughout the city, and has contracted a loan for $50,000 (Mexican) from the Bank of Industry and Commerce, at Chefoo. The company expects that the number of consumers soon will necessitate the further purchase of a 200-kilowatt alternator set.

Hydroelectric Power in Japan.—Water power for the production of electricity shows a remarkable increase in comparison with last year:—

Water-power, 603,985, increase 6,489 kilowatts
Steam-power, 142,100, decrease 5,678 kilowatts

Water power electricity has increased while steam power electricity has decreased and at the end of June this year steam power electricity was about 25 per cent. of water power electricity. According to official investigations, the number of electric power and tram companies in Japan at the end of June was 617, with working capital of 609,465,005 yen, producing 740,145 kilowatts. There was an increase this year of 10 companies, 1,194,300 yen in capital and 811 kilowatts output. The following is a classification of the companies' capital and electric power according to the nature of business:—

	Number	Capital yen	Power kilowatt
Power supply	527	310,936	600,871
Electric Tram	44	51,245	5,880
Power supply, Tram and Light	46	247,284	139,394
Total	617	609,465	746,145

Hangchow Doubling Plant.—American machinery supplied by Andersen, Meyer & Co., Ltd. is to double the plant of the Electric Light Company of Hangchow and will add some 12,500 lamps of 32 c.p., to its present service.

The $100,000 addition of machinery will increase the capacity of the plant from 480 kilowatts to 980. The new plant will have one new turbine with another in prospect.

British N. Borneo Lighting Co.—The Jesselton Ice and Power Co., British North Borneo, have now completed the erection of the electric lighting plant and for some weeks experimental lights have been in use. As soon as the lighting arrangements are complete the manufacture of ice will be taken up.

FINANCE

The Bank of China and the Bank of Communications.—A Presidential Mandate was issued on November 1 as follows:—"Owing to the financial difficulties of the Government for the past few years, wholesale reform has been introduced in the financial administration; and now receipts are sufficient to cover all expenditures of the State. However hereafter there are important financial affairs, such as the unification of currency and the improvement of the management of Public Loans, which require to be greatly developed. It will be noticed that the Bank of China and the Bank of Communications, which are in nature National Banks, have won great public confidence, and they have for years past rendered effective services in the management of the Government Treasury and the issue of bank notes. These Banks are hereby ordered to continue to expand their business according to the policy which has hitherto been followed by them. Thus they will be able to render services for the furtherance of Currency Reform and the success of the Public Loans. These two banks should share together the above-mentioned responsibilities and do their best so that the plans of the Government for the improvement of currency system and the reform of the financial administration may be attained. The Ministries of Finance and Communications are hereby ordered to issue the above instructions to these two Banks."

Commenting on the above a writer in the *Peking Gazette* had the following to say:—

The issue of a Presidential Mandate on Monday deputing the Bank of China and the Bank of Communications to take charge of affairs in connexion with Currency Reform and the issuance of Domestic Loans deserves more than passing notice. From the full translation we published yesterday it will be observed that the Mandate begins by remarking that the State, on account of the financial stringency prevailing in recent years, has had to direct its full attention to reform with the result that its revenue is practically sufficient to cover all expenditure. The prospect is therefore bright, for the State is freed from the worry of a deficit, and can henceforth devote itself to the reforms connected with the country's finances, i.e. currency reform and the importance of our national credit.

While Currency Reform is still receiving the consideration of the Authorities concerned, it has already reached such a stage that the time has arrived to put the result of past deliberations into practice. The Government on two occasions issued Domestic Loan bonds with satisfactory results considering the difficulties to be overcome and the novelty of the venture itself.

The two banks deputed to take charge of these matters are both well-known. The Bank of China is a Government Bank, and such matters naturally fall within the scope of its functions and duties. The Bank of Communications has sixty per cent. of its capital subscribed by private individuals while the Government is interested to the extent of 40 per cent. In the past, the Bank of Communications has only been unofficially recognized as a Government Bank but now its status is officially defined by the Presidential Mandate. It is now officially regarded as a State Bank and is authorized to assume charge, concurrently with the Bank of China, of matters connected with currency reform and the improvement of the national credit.

The President pays a deserved tribute to the Bank of Communications on its past success in putting through responsible transactions for the Government. He urges it to extend its operations further with a view to assisting the Government in its future activities. The credit of the Bank of Communications is extolled and its satisfactory performance of the functions of a State Treasury and in the circulation of paper currency is also commended.

From other sources, we learn that the Bank of Communications has made remarkable progress in recent years, especially as it has survived the storms of the Revolution of 1911 and the Rebellion of 1913, when quite a number of Chinese Banks failed or suspended business. The profit of the Bank of Communications last year amounted to about thirty-four per cent. of its paid-up capital and a dividend of 9 per cent. was declared to shareholders. It is believed that with the increase of its activity in other directions and

the expansion of its business, the Bank will show still better results for the present year. While the Bank of Communications deserves to be congratulated on its enviable success, we observe with regret that in spite of the vast extent of the country and the multitudinous opportunities for profitable banking, there are still so few big financial institutions like the Bank of Communications to assist the Government in the difficult task of effecting the financial reforms that require to be undertaken.

Buys International Banking Corporation.—Telegraphic news has been received in Shanghai that the National City Bank of New York, has bought a controlling interest in the International Banking Corporation. This wire has been confirmed by J. Selwyn Tait, formerly Manager of the Washington D.C. branch of the corporation. The National City Bank is the largest in the United States and one of the largest in the world. It is often referred to as "the Rockefeller Bank" owing to its close connection with various Rockefeller interests.

The main office of the International Bank is in New York, with branches in London, Bombay, Calcutta, Singapore, Hongkong, Canton, Shanghai, Hankow, Peking, Manila, Cebu, Kobe, Yokohama, San Francisco, Panama and Colon. The president of the National City Bank is Mr. Frank A. Vanderlip. It has a capital of G $25,000,000 and a surplus of G $35,000,000; deposits over G $275,000,000; total assets over G $360,000,000. The National City bank was established in 1812.

The purchase of the International Bank is interesting in connection with the recent expansion of the National City Bank. By the provisions of the new currency and banking law, the Reserve Bank Act, which was passed by Congress at the last session, American banks are allowed to establish branches. In conformance with this, the National City Bank has been establishing branches throughout South America with the idea of increasing the facilities of American business abroad. Control of the International Bank will therefore give it an organization in the Far East already thoroughly equipped and firmly established and go far towards completing a chain of banks almost worldwide. The manager of the Shanghai branch of the International Bank, Mr. H. C. Gulland, left for Great Britain a short time ago and his place is being filled by Mr. G. Hogg who came up from Hongkong. Mr. Hogg was asked to confirm the transaction but said that in the absence of official notification he did not feel authorized to say anything.

Calls Chinese Bonds Lottery.—That the new Chinese government savings bank plan by which depositors get a chance at annual drawings for prizes constitutes a lottery within the meaning of the Philippine law is the decision of Judge Ostrand, ruling in connection with the seizure of four packages of the bank's "receipts," addressed to Tan Bee Kin, by the Philippine customs officials. Depositors in the Sin Hua Savings Bank, established by the Chinese government, receive numbered tickets, which at the end of three years may be exchanged for the original deposit without interest. The interest is used in liquidating prizes awarded in annual drawings to holders of numbers selected by chance. The first drawing was held on April 25. The next drawing is set for April 25, 1916, and the last for October 25, 1917. Judge Ostrand holds that the deposit receipts or premium bonds are lottery tickets in view of the chance feature pertaining to the distribution of the interest, and are therefore subject to confiscation. The confiscation of the tickets in question has been ordered and they will later be destroyed. All money collected by way of prizes or premiums on these tickets will be forfeited to the insular government.

Program of Salt Gabelle.—With a view of adjusting the gabelle so that the revenue may be increased, the following programme will be carried into effect from next year according to the Chinese press: In the First District, that is Chihli, Eastern Provinces, Shantung, Hunan and Liang-Huai, the amount of salt to be sold in one year is estimated at 20,620,000 piculs. On them, the duty of $2.50 per picul shall be levied, which will bring a revenue of $51,555,000. In the Second District, or Liang-Che, Szechuan, Fukien, Liang-Kwang, Yunnan, Ichang, Shasi, Sungkiang, Huan-Si and Huan-Tung the amount of salt to be sold is estimated at 14,280,000 piculs. $3 a picul shall be levied on them, which will net the authorities $42,840,000. The total aggregating $94,390,000 shall be counted in the Budget for next year as the revenue from the gabelle.

China to Redeem Notes.—The Committee on reform of the currency system, according to press reports from Peking, has decided upon the following method of redeeming paper notes, which is expected to be put in operation within the month: A loan will be raised for redemption of notes in Hunan, Hupeh, Szechuan and the Eastern Provinces. The proceeds of sales on government property shall be appropriated for the purpose in Kiangsi, Shantung and Shansi. In Chihli, Kiangsu, Anhui and Honan, local tax will be used. In Kansu and Sinkiang, the surplus of the gabelle will be used.

Chinese Banks' Reserves.—According to recent investigations of the Financial Department, reserves of the following 14 government banks total $25,915,995:

Kwangtung Kwan-Chien-Chü, $10,265,000; Kirin Kwan-Chien-Chü, $3,360,000; Chekiang Government Bank, $3,000,000; Yunnan Fushen Bank, $2,085,000; Chihli Government Bank, $1,820,000; Kiangsi Minkuo Bank, $871,700; Hailungkiang Kwanghsin Kungssu, $845,295; Fengtien (Mukden) Government Bank, $736,900; Hunan Bank, $736,100; Hailungkiang Government Bank, $679,000; Kiangsu Bank, $600,000; Szechuan Chunchuanyuan Bank, $600,000; Anhui Chunghua Bank, $200,000; Kwan-Chien-Chü, $117,000.

Shanghai Silver Stock.—The stocks of silver in the banks of Shanghai on November 1 consisted of Tls. 61,978,000 (Mexican Dollars 84,900,000) $18,850,000, and 568 Bars. Of this total Chinese banks, including the Bank of China, the Bank of Communications and the Commercial Bank of China, held between them Tls. 6,100,000, and $8,700,000.

China's Income Tax.—China is to impose an income tax under a law fashioned in many particulars after that of the United States. The public's generous response to appeals for the Patriotic Defense Fund is said to have encouraged President Yuan Shih Kai to issue a mandate putting into effect a law regarding which the proclamation says that of late the patriotism of the people has been increasing daily, and an opportune time has come to inaugurate an income tax system. The President's proclamation adds that the tax must be paid by merchants, Government officials, bankers and professional men beginning Jan. 1.

Pawn-brokers, shroffs, salt merchants and firms given special privileges by the government shall pay at every year end, incomes under one thousand dollars a year excepted:

Over $1,000 5 per cent is paid while incomes of $100,000 pay 3 per cent and incomes of $1,000,000 pay only 2 per cent. Officials pay at the end of every month as do persons engaged by a firm or corporation. Below fifty dollars a month the salary is exempt.

It is proposed later to extend the tax to persons whose incomes are smaller than those now affected. The minimum income on which the tax will be levied has been fixed at $50 a month.

Japan's Foreign Loans.—In the Japanese press it was reported a few weeks ago, that a number of leading Tokyo bankers entertained a view that it was advisable for the Government to take advantage of the present relaxation in the money market for the conversion of foreign loans, otherwise Japan would find it very difficult to redeem her big loan, when it falls due ten years from now. The *Chugai Shogyo* now reports that an opinion quite opposed to the above prevails among other Tokyo bankers and financiers. These men hold that the war has prevented Germany, England, France and other Powers engaged in the war from being fully engaged in Far Eastern enterprises and has thus given a unique opportunity for Japan to establish an economic and commercial supremacy in this part of the globe. Investment in China, which was prior to the war, subject to competition, is now almost exclusively open to Japan. Turning to home industry, there are yet many things to be developed as may be seen from an example of the proposed manufacture of drugs and dyes. In iron refining, Japan can turn out only 250,000 tons a year, while she has a demand of from 1,000,000 to 1,300,000 tons a year. In railway enterprise, the funds necessary should hereafter be raised from the domestic money market, but not by means of taxation. Under these circumstances, the present plethora of money in the home market can be used very profitably to secure industrial national independence and commercial supremacy in the Far East. There is no need to convert the foreign loan which is not yet due. If Japan could first achieve industrial progress, the payment of foreign loans when due would be an easy matter, in the opinion of these magnates.

Japan's Railway Loan.—Sometime ago the Japanese government decided to issue internal bonds to pay off the £3,000,000 of railway bills which fall due in London in February as it is practically impossible to renew them under present financial conditions. At a meeting of leading Japanese bankers of Tokyo and Osaka at the Bank of Japan to consult with the President of that bank as to the issue of the bonds, the bankers practically all consented to subscribe to the bond issue. No details have been given out as to the terms or rate of interest. It was reported, however, that the 30,000,000 yen bond issue will be divided into three parts; 10,000,000 yen will be issued at the end of November, 10,000,000 yen at the end of January next, and 10,000,000 yen in the early part of February. The issue of Russian treasury bonds to the amount of several tens of millions of yen was not discussed.

Japan Importing Gold.—An Osaka despatch to the Jiji says that specie to the value of 2,500,000 yen has arrived as the first part of the twenty million yen in gold that is being brought to Japan from foreign countries. According to an authority in the Finance Office, the specie reserve of Japan has increased greatly, principally because of the excess of exports over imports in trade returns and munitions. The specie reserve both at home and abroad has reached 493,000,000 yen.

Industrial Investments of Japan.—According to investigations carried out by the Bank of Japan, the amount of fresh capital invested during October was 32,000,000 yen, of which 5,750,000 yen was for new companies, and 26,253,000 yen for the extension of existing companies. Compared with the previous month, there was an increase of 800,000 yen in the establishment of new companies, and 19,953,000 yen in the extension of existing ones, making 20,753,000 yen in all.

The following table shows the figures of new investments in October duly classified:—

Electric	Y 3,283,000
Fishing	300,000
Railways	2,870,000
Manufacturing	13,850,000
Insurance	11,000,000
Miscellaneous	700,000
Total	Y 32,003,000

It is to be noted that there were no new investments for banking, cotton milling, mining or shipping. However, the increase compared with the previous months shows that a business improvement has set in. New investments during the past ten months amounted to 208,284,250 yen of which 58,833,000 yen was for new establishments, and 149,451,250 yen for the extension of existing ones. Compared with the figures for the corresponding period last year, there was a decrease of 45,302,000 yen in the amount of new promotions, but an increase of 20,034,000 yen in the extension of existing companies.

TRADE AND COMMERCE

Customs Revenue for September.—The Customs Revenue for the month of September last appears to falsify the general belief that the war in Europe, by decreasing the import trade of the country, would entail a loss of Customs Revenue. A comparative statement of the Maritime Customs made up for that month shows a total receipt of Kueiyuan Taels 2,960,000, an increase of Kueiyuan Taels 590,000 over the amount collected for the same period last year. With regard to the Native Customs, approximately Taels 300,000 have been collected for the same period, showing an increase of some Taels 70,000 as compared with the amount from the same source last year. All payments due to foreign countries for account of loans, etc., secured on the Customs have been paid up to date.

Chinese in Hongkong Trade.—Chinese shippers are again securing an increasing share of the export trade of the port, much of which was lost to them in the troublous times following the revolution in China, according to U. S. Consul General Anderson. In 1908, of the 8,353 invoices consulated in this consulate general, covering the shipment of goods to the United States, the Philippines, and Hawaii, 6,776, or 81 per cent of the whole, were from Chinese firms. In 1910 the proportion rose to 82 per cent. In 1911, 1912, and 1913, the proportion of shipments by Chinese firms fell off to a little over 70 per cent. For the first half of the current year the proportion of invoices by Chinese firms has been 78.2 per cent of the whole, as compared with 75.7 per cent of the whole for the same period of last year. One result of the war and the liquidation of the business of German firms in Hongkong is the increasing share of Chinese shippers in export business. It is likely that the same conditions in foreign trade which have impressed upon foreign shippers the desirability of standard export contracts and similar arrangements in time will impress themselves upon Chinese exporters in the same way, but there is little likelihood that the actual enforcement of any standard arrangement can be expected until Chinese exporters have had more experience with the general export trade to the United States and Europe.

British Trade in China.—In his report on the trade of Tientsin during 1914, Mr. D. B, Walker, the British Consul, remarks that while British merchants have no cause to complain of their share in the export trade, it is highly regrettable that import trade is left severely alone by all but two or three firms. Inquiry shows that the determining factors are keenness of competition (German and Japanese), instability of trade occasioned by long terms of credit to Chinese dealers and lack of redress in the Chinese courts for broken contracts. Of these, perhaps, the last is the most serious, but much might be done to increase British participation in the import trade by closer co-operation between banking and commercial houses, by greater combination of manufacturers resulting in facilities for sending out goods on a consignment basis, and by a readiness to sacrifice profits for a term until a firm footing in the market shall have been gained. Three features of German trade are, in the opinion of Mr. H.A. Ottewill, Consul at Chinkiang, largely responsible for its success: the sending of German experts on all possible occasions, and the employment of travellers in the interior; the use of long credits; and underselling.

"The instances which I have in mind as to experts," he said, "are experts who show Chinese using German dyes how to employ them to the best possible advantage; the trade being conducted by German firms at Shanghai through Chinese, the travelling expert keeping in touch with the up-country user; the free use of technical men in all cases in which German machinery is sold; and men who are ready to sell all kinds of military and other gear to the Chinese Government officials. British firms have steadily set their faces against long credits, and it is admitted that the German firms have incurred serious losses on occasions. Personal knowledge and guarantees are the bases on which credit stands. Agencies are probably not very profitable to the firm represented, and the suggestion is made that British firms in similar lines should unite to send out a representative to study the chances of establishing themselves at a large treaty port and of trading up-country."

Machinery for Nagasaki.—Since mining and shipbuilding are carried on to a very considerable extent in the Nagasaki district, reports U. S. Consul E. Carleton Baker, there is an excellent opportunity for the sale of mining and electrical equipment. The principal machinery imported last year at Nagasaki and Moji included steam boilers, locomotives and tenders, steam turbines, dynamos, cranes, pumps, and metal-working machinery. The value of machinery imported to Moji alone exceeded $1,250,000, and the amount brought to Nagasaki was almost $750,000. A great deal of the machinery trade in this district has been in the hands of firms who are unable at present to supply the local demand. The moment, therefore, is most opportune for Americans to enter the field. A consistent and determined effort, however, should be made and every facility should be offered. An engineer should be appointed to work in conjunction with a good English-speaking Japanese engineer and reliable interpreter. They should be selected from the better class of Japanese, who could be received socially by the higher Government officials and the heads of the best Japanese firms. Obtaining contracts in the Orient usually requires elaborate preparations and a series of entertainments, and offices that expect to do a large business should be established on a liberal scale. Details in this regard could be readily arranged with a manufacturer's agent who is thoroughly familiar with local requirements.

Japan's China Trade Decreased.—Reviewing the recent tendency of Sino-Japanese trade as affected by the war the Oriental Economist points out that export to China has decreased to a considerable degree this year while the import trade has remarkably increased in comparison with previous years. The following is the comparative table of exports and imports for the first nine months this year and for the same periods of last year and the year before:

	Export	Import
1913......	Yen 112,643,728	Yen 42,355,970
1914......	„ 127,107,140	„ 41,835,919
1915......	„ 97,859,164	„ 56,960,583

The trade balance for the first nine months last year was some 85,300,000 yen in favor of this country, but the balance this year was only 49,900,000 yen. The cause of this change can be attributed to the depreciation in silver which affected the purchasing power in China. The decrease of exports to China consisted of cotton yarn and textiles, copper, coal and lumber, of which cotton yarn declined to the extent of 20,000,000 yen, copper about 8,000,000 yen and other commodities ranging from 2,000,000 yen to 3,000,000 yen. The increase in imports from China was due to the increase in the import of wool, and this because of the scarcity of stock on the Australian market. The increase in this material was about 3,000,000 yen. The import of iron from China also increased by about 1,000,000 yen. This tendency due to the war, is expected to continue as long as the conflict lasts, but the encouraging feature is that the increase of imports mainly consists of raw material which Japan will turn into various manufactured goods for export to other countries.

During the war year to August Japan's export trade with Asia has expanded by 17,530,000 *yen* till the end of August, mainly because of the active buying from Asiatic Russia, British India, Australasia and the Dutch Indies. Though China began to buy in earnest in August, there is a decline of 32,290,000 *yen* in the share of China proper and Kwantung province and of 4,700,000 *yen* in the share of Hongkong when the total result of the past quarters is compared with the same time last year, the decline being entirely traceable to the general depression of commerce and industry in that country and the agitation against Japan. The prospect for the coming quarter is, however, bright, because the anti-Japanese agitation has already died out and cotton yarn, cotton fabrics, matches, and other articles are now being taken in an ever-increasing quantity.

According to the report of the Finance Department, the exports in the first third of the month of November increased 8,587,000 yen over that of the corresponding period of last year. The total was 22,596,000 yen. Imports increased 4,423,000 yen, amounting in all to 12,910,000 yen. To date, the exports this year show an increase of 78,713,000 yen and a total of 590,904,000 yen. The import decrease is 69,681,000 yen, with a total of 463,190,000 yen, leaving an excess of exports over imports of 127,714,000 yen.

Straits Export Trade.—The return of imports and exports for the second quarter of this year has been published. The grand total shows imports valued at *$108,346,757 compared with $115,217,679 in the same quarter of last year. The figures for the various Settlements were Singapore $80,703,023, Penang $24,895,211, Malacca $2,748,523. Singapore showed an increase of $1,667,622, Penang a decrease of $8,793,175 and Malacca an increase of $254,731. In exports the total for the Colony was $106,478,881 an increase of $11,670,165, of which Singapore increased $14,952,759, Malacca, $1,519,458, while Penang decreased $4,801,501.

Considerable increase appeared in the export of tanned hides which rose fifty per cent to a value of nearly a million dollars. The imports of cotton goods generally declined. Cocoanut oil increased from $500,000 to $900,000 and petroleum from $156,000 to $382,000. Para rubber increased in imports from five million dollars to over ten millions whilst the exports grew from ten millions to eighteen millions. Tin ore imports fell off by about five thousand piculs, the total value being just over nineteen million dollars. The exports of tin however showed an increase and totalled 26½ millions. Pearl tapioca showed a considerable increase in import and export as was also the case with

black pepper. Salt imports doubled in value, totalling over three hundred thousand dollars. Opium imports grew from a quarter of a million to well over a million, a matter merely of time of obtaining supplies. Rice imports totalling over twelve millions were two millions short of last year.

(*Straits Dollar, 57 cents gold.)

Burma's Trade in 1914.—The imports for B·rma, for 1914, from all countries, dropped from fifty-two million to a little over 40 million dollars. The biggest sufferer was Germany whose imports dropped from 3,800,000 dollars to 1,700,000. The imports of the United States showed an appreciable increase, having risen from 1,900,000 to 2,250,000, and may be said to be the only country of any size to show any increase. This was in a measure due to a larger number of American pipes being purchased for oil-fields.

Japan's Silk Exports.—The export of raw silk to America has increased during the past few months. For the four months from July to October, 61,448 bales of raw silk were exported to America, an increase of 5,464 bales over last year. To Europe 13,054 bales were exported, an increase of 6,914 bales over last year. In comparing the amounts exported to America and Europe in the year before with those of the past four months, there is an increase of 11,055 bales to America and a decrease of 15,000 bales to Europe. The war has had a big effect in the export trade of raw silk, the leading export of Yokohama. The amount of export of this material in Japan, during the first half of this year, was 54,600,000 yen, a decrease of yen 27,210,000 over the same period of last year. This was due partly to the decreasing demand in America and other European countries, especially in France and Italy.

MANUFACTURES AND INDUSTRIES

New Enterprises in Chekiang.—The fact that in Chekiang industry is making wonderful development can be attested by the following data: During the month of September twelve agricultural companies with an aggregate capital of $225,950, while 62 industrial companies with $659,600, sixteen commercial corporations with $618,100, and 36 transportation companies with $1,523,910 capital were registered at the Department of Agriculture and Commerce.

Coconut Products Co. Formed.—The Cooperative Coconut Products company, a purely American enterprise organized for dealing in coconut products and machinery connected with the coconut industry, has been registered at the archives division of the executive bureau. The incorporators of the new firm, which will have its main offices in Manila and conduct business in all parts of the islands, are H. B. McCoy, President of the Colorado Mining Co.; C. H. Sleeper, former Director of the Bureau of Lands; W. L. Applegate, H. W. Beam, and G. C. Sellner, a real estate dealer. The capital stock of the organization is P25,000. C. H. Sleeper has been made treasurer of the company.

India's Cotton Mills Busy.—Cotton mills in India produced 181,000,000 pounds of yarn during the three months, April to June, 1915, compared with 174,000,000 pounds in the 1914 period and 169,000,000 pounds in the 1913 period. Woven goods manufactured totaled 82,000,000 pounds in April-June, 1915, compared with 69,000,000 pounds and 66,000,000 pounds in the corresponding quarters of 1914 and 1913. Most of the yarn spun runs below 26s.

Paper Pulp in Indo-China.—A report from U. S. Consul Lawrence P. Briggs, Saigon, sets forth the condition of two pulp mills of Indo-China as follows: With the industrial development of Tonkin during the past few years, two mills have been established for the manufacture into paper or paper pulp of the abundant supply of suitable wood growing along the banks of the Rouge River and its tributaries.

The Sociéte des Pulpes et Papeteries du Tonkin has its main office at Haiphong, but its mills are located at Vietri at the junction of the Rouge and Claire Rivers. This company was organized in 1910 with a capital stock of 660,000 piasters (a little more than $300,000). Its machinery was imported in 1911 from the United States and Europe, and the factory began to operate in April, 1912. So far this factory has not attempted the manufacture of paper, but has been engaged in the manufacture of pulp from bamboo. Its capacity is said to be 3,000 to 4,000 tons per year. During 1912 the company exported 5 tons of paper pulp to France and 14 tons to Hongkong. The exports to France were largely experimental, and the French manufacturers were well pleased with the product. During the next year 210 tons of pulp were sent to France and 69 tons to foreign countries. The pulp is said to have been very satisfactory and to have sold in the London market for as much as £13 per metric ton ($63.26 per 2,204.6 pounds). During the first three quarters of 1914, 314 tons were exported to France and 22 tons to foreign countries. The outbreak of the war deprived this industry of its French market and high freight rates have closed other European markets to it. Consequently, the mill closed in September and has not since reopened. The subsequent rise in the price of caustic soda has made it impossible to manufacture pulp for less than 110 piastres (a little more than $50) per metric ton f. o. b. Haiphong. The company is ready to resume operations if it can secure an order for 1,500 tons at this price.

The Societe Anonyme de Papeteries de l'Indochine was organized in 1913 with a capital stock of 1,500,000 francs (about $300,000). Its headquarters are at Grenoble, France. Its plant, located at Dap-Cau, near Hanoi, was constructed during 1914 and began operations during the latter part of that year. This plant manufactures paper out of various woods and plants, using only a small proportion of bamboo. The company has had no trouble finding a local market for its product.

New Torpedo Factory.—Advices from Kobe say that the Kobe Steel Foundry has decided to reclaim a tract on the coast at Mirume near Kobe and to build a large factory upon the reclaimed ground. The work was begun on October 24. The new factory will be devoted to the manufacture of torpedoes. The company expects to get an order of 1,000,000 yen annually, from the Japanese Navy and will accept orders from foreign countries as well, after the Navy's demands are supplied. This is said to be the first factory in Japan for the manufacture of torpedoes.

Japan and Russian Shells.—Eight hundred thousand shells for three-inch guns, that the Russian government ordered from the Japanese War Office, are gradually being delivered to the Russian government at 8 or 9 yen each.

The Russian government recently placed with the Japanese army another order for 4,000,000 shells of the same size, too large an order, it is said, for the Military Arsenals at Tokyo and Osaka in the time set by the Russian government. The authorities of the War Office are therefore negotiating with the directors of the Kawasaki Dock at Kobe, the Kobe Steel Foundry and the Ishikawajima Dock at Tokyo to take up portions of the new order. The three companies refuse to take any part of the order at the price which the War Office accepted. They say that since the United States manufacturers are supplying the Russian Army with three-inch shells at about 16 yen, they should get at least 15 yen. It is pointed out that even at that figure, it still would be advantageous for Russia to accept the proposal of the Japanese companies rather than to go to the American manufacturers, because the price of the Japanese is still lower by one yen and besides Russia can economize in the cost and time needed to convey shells from Japan to the front.

Later reports are that a plan is being completed by interested business men for the organization of a big, joint stock company to manufacture munitions. The capital of the projected concern is put at twenty million yen. Whether the government will agree to give any state subsidy or not is an open question, but it is believed that if the government does not give any monetary assistance, it will aid the new concern by supplying experts or in some other way. This would indicate that Russia has met the price.

Dairen's Outputs of Bean Cake.—At present there are 56 bean mills at Dairen, 36 in the city proper and 20 in Hsiaokangtzu. The highest number of pieces of Bean Cake put out by one mill was 7,000 a day, the ordinary daily average being 1,000 pieces. During October the largest number of pieces produced in a day was 55,000 and the lowest 21,000 pieces, the aggregate for the month reaching 858,000 pieces. The figures for the latest three months are:—

August, 430,320 pieces; September, 573,000; and October, 858,000 pieces. "January" Bean Cake on the Fukagawa Bean Cake Market, Tokyo, on November 9, was Y1.21.

Glass Factory for Yokohama.—A new glass factory will be started in Yokohama. Mr. Nakata Keizaburo, backed by leading bankers and business men, has purchased a site at Ratabira Creek covering 25,000 tsubo for the establishment of a large plant. The construction work will start at the end of the month.

Japan to Make Soda.—The proposed establishment of a manufacturing company to make soda, bleaching powder, and other products from Kwantung salt, has been revived of late. A company is to be organized with a capital of Y700,000 wholly paid up.

As this will be the first industrial venture in this line, the promoters were inclined to start it as an experiment and in case of its prospering, the company's capital will be increased eventually to Y3,000,000. The manufactory is to be located at Kita-Fukushima, Osaka, and work will be commenced at the end of the current year. The machinery is to be ordered from the United States. The new factory will consume 8,000,000 *kin* (1.3 lbs) of Kwantung salt, and put out Y600,000 worth of caustic soda, Y300,000 worth of hardened oil, and Y1,100,000 worth of other products at the start. Factories are to be founded later at Kokura and somewhere in South Manchuria so that altogether 30,000,000 *kin* of Kwantung salt may be consumed by the three factories. Later reports say that the scheme has come to a halt. According to an expert, the promoters of the Company intended to adopt the electrical solution system, which, in his opinion, was a radical error. He thinks that the ammonia soda process should be used, since the supply of electricity at home would cost too much and some difficulty would be met with as to the disposal of a large amount of bye-products which will be left as a result of the adoption of the electrical solution system.

Japan to Subsidise Laboratory.—After repeated conferences at the Department of Agriculture and Commerce of government officials and individuals, it has been decided that a chemical laboratory should be established with a capital of 2,000,000 yen, and receive an annual subsidy from the government for some years. It is reported that the government has agreed to give an annual subsidy of 250,000 yen to the new laboratory.

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FOSSILS OF THE CHINESE DRAGON

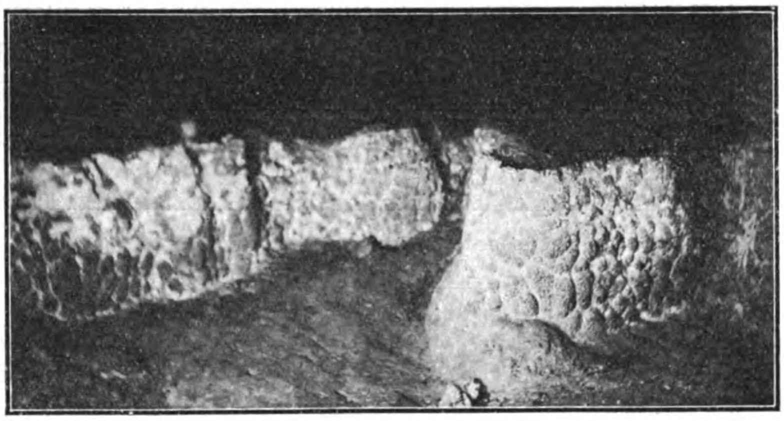
Discovery in a Cave on the Upper Yangtsze

(BY J. O'MALLEY IRWIN, L.R.C.P. and S., I., L.M.)

The discovery in China of immense fossils of marine reptiles presents many points of interest, more especially at the present acute stage of the country's political history.

"Good Joss" and "Bad Joss" always figure largely in the Chinese mind and the discovery of fossils which may clearly indicate the origin of the Imperial Chinese Dragon may well be considered "Good Joss" at the present time when the restoration of the Monarchy seems imminent and is indeed practically *un fait accompli*.

Another point of interest lies in the fact that as far as I can ascertain the present is the first discovery of such fossils in China. Again the location of the fossils over 1,000 miles from the present sea border indicates the enormous changes which have occurred in the country's configuration since these long extinct reptiles existed and incidentally indicates the extreme age of the fossils. The discovery was made in October of this year by a party consisting of Mr. M. Hewlett, H. B. M's Consul at Ichang, Mrs. Hewlett, my wife and myself.



NO. 1—NEAR VIEW OF FOSSIL DRAGON

My wife and I had made the journey through the Upper Yangtze Gorges from Kwei Chow Fu in two of the famous river Red Boats, an ideal method of making the journey, as it permits the traveller to land at will to climb the cliffs and explore caves, etc.

Mr. and Mrs. Hewlett joined us at Nom'to, which is situated at the upper end of the Ichang Gorge, and made the trip through this Gorge with us. They informed us of the existence of a large cave situated on the right bank of the river about a mile above the Customs Station of Ping Shan Pa, and on arrival at this cave the whole party landed to explore it. The Chinese name of the cave is Shen K'an Tzu and it is worthy of note that one of the characters which form the word K'an in Chinese is the character used to indicate Dragon.

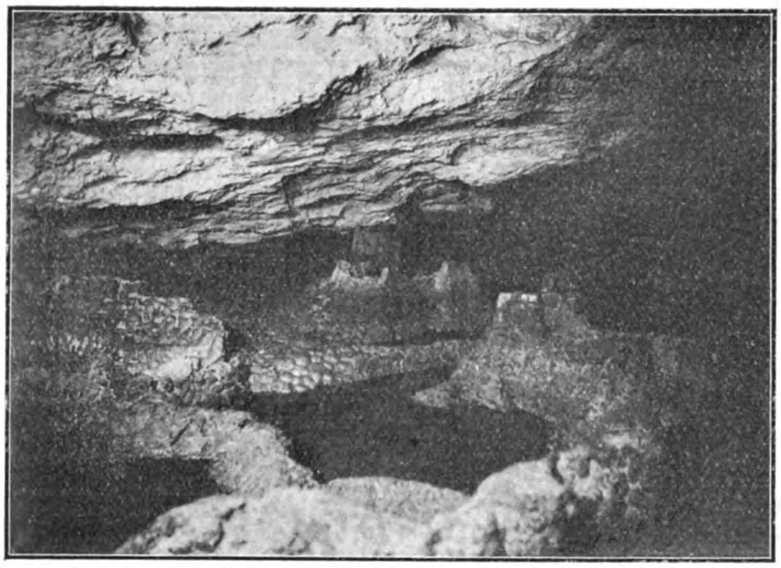
A large rock is seen at the entrance to the cave and about eight yards behind this a peculiar piece of rock somewhat like the coil of a large reptile. This resemblance, faint as it is, evidently appealed to the Chinese mind, for we were informed that the cave was sometimes called the Dragon Cave and that it was reputed to extend for 50 li and to lead to the "Lung Wong Tung" or "Cave of the Dragon King" situated near Ichang.

In former years many foreigners have penetrated far beyond the spot where the fossils are now plainly visible, so that it seems likely that they have been recently uncovered, probably by a heavy discharge of water through the cave.

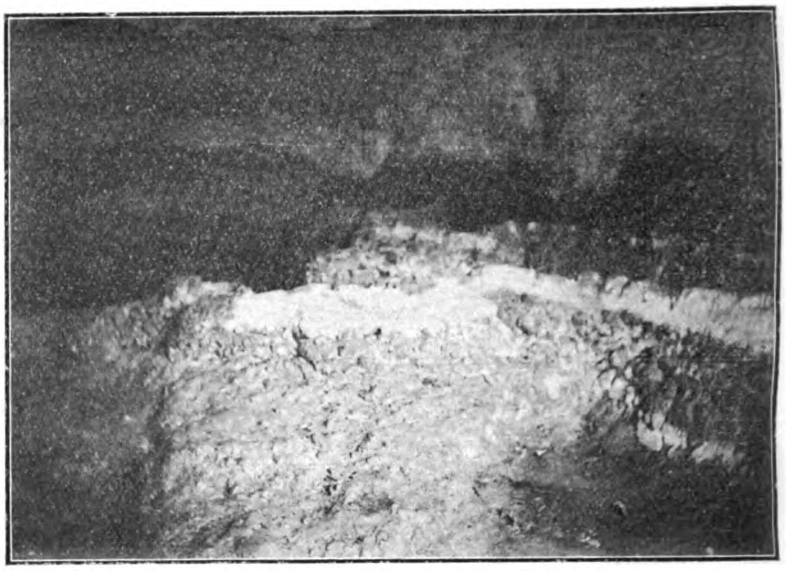
When with lighted lanterns we had penetrated about 100 yards we found ourselves walking along a ridge of rock in order to keep out of the surrounding pools of water, and it was the peculiar serpentine course of this ridge which excited our curiosity and led to a closer examination which revealed the fact that we were walking along the back of what we at first supposed to be a Chinese dragon carved in stone and that there were six or eight of these "stone dragons" lying coiled together. Additional lights in the shape of flares of bamboo rope and the examination of some loose pieces of scale informed us that the supposed stone carvings were in reality fossils.

Having no means of measuring the specimens we agreed to return to the cave early the following morning to take measurements and make such further investigations as the short time at our disposal would admit. The measurements and facts ascertained upon our return were as follow: Length of the largest fossil was between 60 and 70 feet from a point where the head was partially buried in the cave wall to the first point of contact with any of the other specimens, thus showing the length to be at least between 60 and 70 feet and it seemed to us that the same reptile extended for another 60 or 70 feet, but owing to the intermingling of coils of various reptiles at this point error is possible here and confirmation or otherwise must be left to more skilled observers with plenty of time at their disposal.

The depth of the portion of body uncovered and shown in photo No. 1 was 2 feet. Two legs or paddles partially uncovered were observed about 12 or 14 feet from the head and another pair about 40 or 50 feet from the same point. The head appeared to be large and flat. It seems probable that the specimen examined is a fossil of a *Morosaurus Camperi* and that it and the other reptiles were trapped in the cave in past ages and there starved



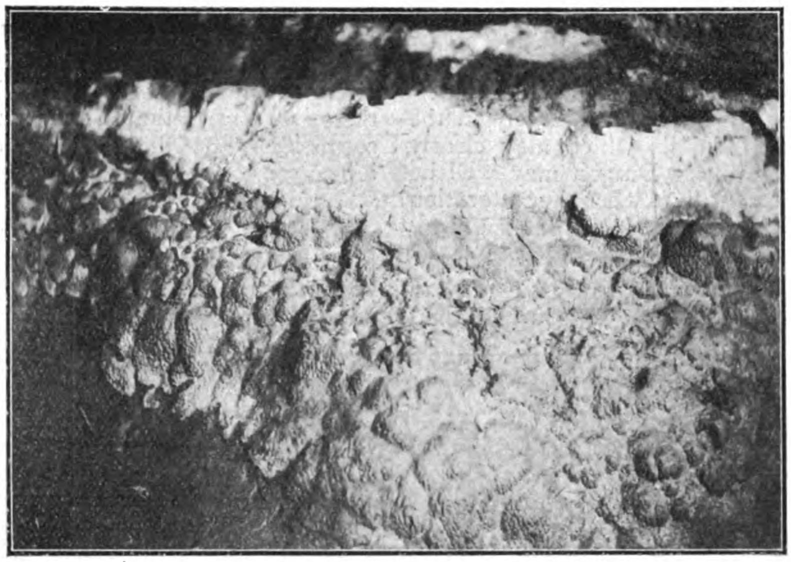
No. 2—Cave Showing Coiled Fossils



No. 3—Near view of Scale Formation

to death; comparison between the length of the reptile and the depth of the body and its thinness would also point to starvation as the cause of death.

An account of the discovery, accompanied by flash-light photographs and some specimens of scale have been sent to England and will be submitted to expert examination at the British Museum. Specimens and photographs have also, I believe, been sent to Tokyo for expert examination. The various experts will doubtless in due time pronounce judgment as to the genuineness of the fossils, but in any case whether the specimens are in the meantime looked upon as fossils, stone carvings or peculiar water formations in the soft limestone, they will, I venture to predict, remain objects of extraordinary interest and nothing short of the definite pronouncement of experts will convince the ordinary unskilled observer that they are anything else but fossils. After my departure from Ichang Mr. Hewlett accompanied a Chinese photographer to the cave and had flash-light photos taken, copies of which I enclose with this article. No. 1 shows a portion of the measured specimen. No. 2 portions of various reptiles lying coiled across the cave. No. 3 scale formation and No. 4 the prominent line of spinal column. I reported the discovery as soon as possible to Dr. Morrison, at Peking, with the request that he should endeavour to interest the authorities sufficiently to induce them to protect the specimens from the possible vandalism of sight-seers and curio collectors and am glad to say his efforts were successful as President Yuan Shih-kai sent telegraphic instructions to the Governor of Hupeh ordering him to have the fossils protected from injury.



No. 4—Showing Spinal Prominences

NEW TELEPHONE SYSTEM AT TIENTSIN

Following out its policy of extending and improving telephone services in China, the Ministry of Communications of the Chinese Central Government placed an order in 1913 for a new modern Central Battery telephone system for Tientsin. The new system was put into operation in June, 1914, and replaces the old Magneto system, which was not adequate to meet the increased demands for telephone service.

The old system consisted of three central offices located respectively in Tientsin City, the British Concession, and Hopei. For the new system it was decided to employ only one central office, which is installed in modern buildings erected especially for the purpose on the Tientsin City bund near the boundary line of the Foreign Concessions. The accompanying illustrations show the main building and a portion of the associated buildings. The telephone switchboards and associated apparatus and wiring are located in the main building, while the other buildings are quarters for the managing staff, operators, stores, etc.

The operating room, containing the switchboards, is located on the second floor of the main building. The accompanying illustrations show the arrangement of switchboards and associated desks.

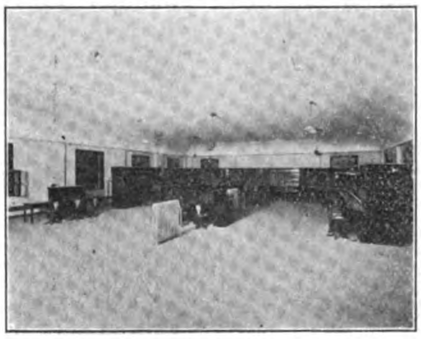
Switchboards

The main, or subscriber, switchboard consists of thirteen 3-position, 8-panel sections and one 3-panel section, and is the No. 2001 Central Battery Multiple type with lamp signals. This switchboard has a capacity for 10,000 lines and a present equipment for 4,000 lines. Also, there is an equipment for 15 rural magneto lines.

The first position of the subscriber switchboard is equipped with 15 toll-switching trunks for connecting city subscriber lines to toll lines. The second position has a partial equipment of regular subscriber cord circuits and also some special cord circuits for handling the rural lines. The remaining positions, except the last, are equipped each with 17 pairs of regular cord circuits for completing connections between city subscriber lines. The last position is equipped with cords for testing.

The switchboard sections are composed of steel angle and bar framework encased in highly polished mahogany woodwork.

Tientsin Exchange Building



Switchboard Lineup

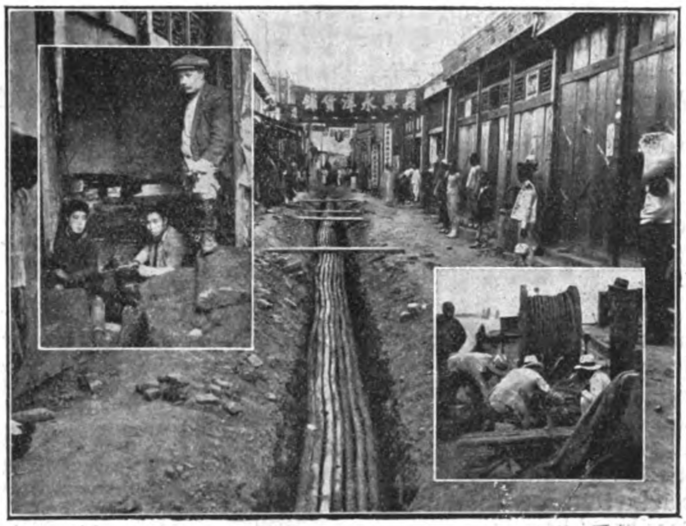
Toll Switchboard

Each section has a capacity for 10,000 multiple jacks, 160 trunk jacks and 480 answering jacks with lamps. At present there are equipped in each section 4,000 multiple jacks, 40 trunk jacks and 300 answering jacks with lamps. The equipment is arranged so that each operator takes care of 100 incoming lines and can reach any one of the 10,000 multiple jacks for calling purposes. Each operator is provided with a key for registering calls and the message registers for this purpose are located in a cabinet back of the switchboard.

In addition to the subscriber switchboard there is a 2-position Toll or Long Distance switchboard equipped for 20 toll lines. This is provided with a calculagraph for automatically recording the length of time of toll conversations. In the accompanying illustration the toll switchboard is shown at the left of the subscriber switchboard.

Chief Operator's and Information Desk

In the center of the operating room is located the 2-position Chief Operator's and Information desk. This desk is provided with the necessary equipment for supervising the work of the operators and one of the positions is arranged for an information operator to take care of inquiries from subscribers.



Installation work on Underground Cable

Distributing Frames and Apparatus Racks

These are for the purpose of distributing the various wires and cables and mounting such apparatus as is not contained in the switchboard sections. For convenience and economy in cabling, the terminal room, which contains these frames and racks, is located on the first floor directly beneath the switchboard, as shown in the accompanying illustration.

All frames and racks are of steel angle and bar construction, and are designed to accommodate the ultimate capacity of the exchange by means of additions as required from time to time.

All the wires from the subscribers' telephones are terminated on protectors on the Main Distributing Frame. These protectors consist of carbon block arresters and heat coils, which serve to protect the exchange equipment from lightning or other abnormal electric current.

In order to protect the apparatus from excessive electric current from the batteries, all switchboard circuits are fused. These fuses are mounted on a separate slate panel fuse board and are the alarm type which, when blowing, cause a lamp to light and a bell to ring.

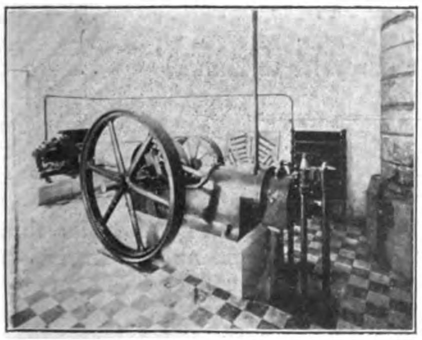
Wire Chief's Desk

The Wire Chief's Desk is for the purpose of detecting and locating troubles and faults which may occur on the outside lines or within the exchange. This desk is provided with all the necessary testing equipment for making complete and accurate tests and quickly locating troubles.

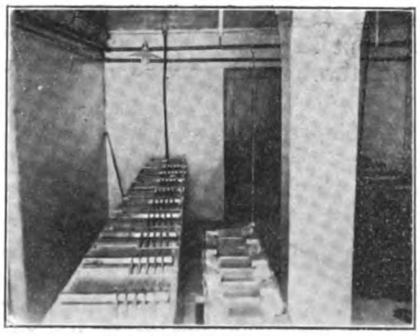
Power Apparatus and Batteries

Electric current for operating the switchboard and subscribers' telephones is obtained from storage batteries located in a special room in the basement of the main building. There are two main 24-volt batteries, each consisting of eleven chloride type cells. Also, there are two smaller auxiliary batteries of eleven cells each to obtain 48-volt current for long distance transmission.

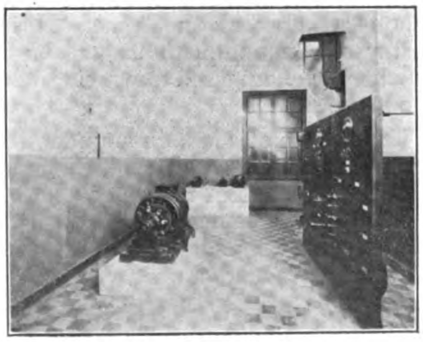
There are two separate generating sets for charging the storage batteries, one a motor generator set to operate from the city electric power mains, and the other a generator belted to a producer gas engine. The motor generator set is located in the power room adjacent to the terminal room, and the gas producer, gas engine and associated generator are located in a small building at the rear of the main building.



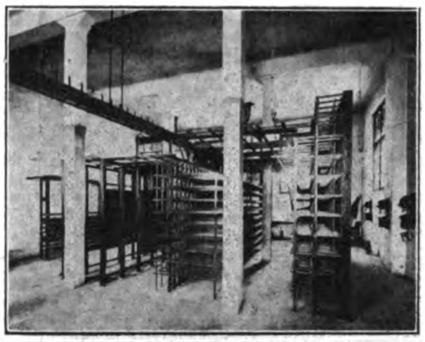
Gas Engine



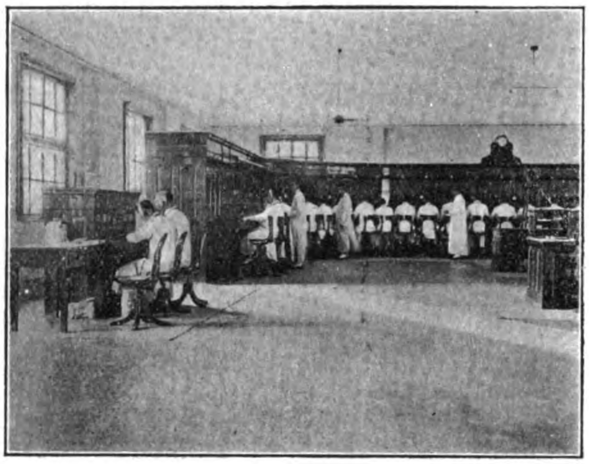
Storage Battery



Power Board and Machines



DISTRIBUTING FRAMES



SWITCHBOARD ROOM

UNDERGROUND CABLE ENTRANCE

Current for ringing the subscribers' telephones is supplied by two separate ringing outfits, one a ringing dynamotor operated from the storage batteries, and the other a ringing machine belted to a small motor which operates from the city electric power mains.

The power board, containing the necessary switches and meters for the control of the charging and ringing current, is located in the power room. All wiring for the power apparatus and batteries is carried in steel conduit laid in the floors of the building.

Cabling and Wiring

All local wiring in the switchboard sections is formed neatly into cables. All wiring between the switchboards and the distributing frames and racks is carried in cables protected by a fire resisting covering. All cables are supported on steel racks, which are designed for future cabling as required.

Outside Cable and Wire Plant

The wires to subscribers' telephones are carried from the main distributing frame in the exchange building, in 300-pair steel armored underground lead covered cable, to junction boxes mounted on steel poles in the various districts. From these junction boxes the wires are further distributed in aerial lead covered cables to cable terminals containing fuses and arresters for protection. From these cable terminals the wires are run open on poles to the telephones in subscribers' houses.

Subscribers' Telephones

To meet the varied tastes of the subscribers three types of telephones have been supplied—a black finish metal case wall type set with microtelephone, a black finish desk type set with microtelephone, and a nickel finish desk stand type set with Bell type receiver.

Each subscriber's telephone is equipped with a No. 58-A protector to prevent damage to the instrument from abnormal current on the lines.

There are also a considerable number of Private Branch Exchange switchboards in use in various offices throughout the city. These range from 5-line to 25-line capacity.

Most Modern Telephone System in China

The completion of this new system provides the city and settlements at Tientsin with the most modern and efficient telephone equipment in China. It is to be hoped that the Ministry of Communications will be able to carry out its plan of further extending and improving telephone service throughout the country.

The system at Tientsin is under the able and efficient management of Mr. Tsai Chee, Managing Director, and Mr. K. Rothe, Superintendent and Engineer. The Assistant Engineer, Mr. K. T. Long, is a graduate of the Government Institute of Technology at Shanghai, and has completed the Telephone Engineering Student Course with the Western Electric Company in America.

All the equipment and apparatus for this new system was manufactured by the Western Electric Company, which sent out engineers from its factories to supervise the erection and installation.

TELEGRAPHS IN CHINA

According to the latest report of the Ministry of Communications the total length of telegraph line in the country is more than 90,000 li, of which the government owns 49,430 li and the rest is owned by private companies. The lines owned by the Government are approximately as follows:—

Kiangsu	3,302
Anhui	1,592
Chihli	2,947
Three Eastern Provinces	10,288
Shangtung	1,497
Kuangtung	5,646
Szechuan Frontiers	2,700
Fukien, from Foochow to Amoy	144
Kansu	3,085
Kueichow	450
Sinkiang to Ili	9,956
Yunnan	6,242
Kuangsi	6,045
Private lines as follows:—	
Shangtung	3,709
Shansi	1,669
Honan	3,408
Shensi	1,104
Fukien	2,670
Chekiang	2,793
Kiangsi	2,669.5
Hupeh	5,462.5
Hunan	2,769
Szechuan	2,874
Kuangtung	1,499.5
Kiangsu	434
Chihli	3,400
Metropolitan Districts (from Peking to Kao-pai Tien)	697.5
Mongolia (from Mongolian Frontier to Kulun)	2124.5

MORE TELEPHONES FOR JAPAN

The Department of Communications, in its annual estimates for the fiscal year 1916-17, has requested an appropriation of 25,000,000 yen for an expansion of the telephone system in five years commencing with 1916. This amount however has been reduced by the financial authorities to 15,000,000 yen, the appropriation for the fiscal year 1916-17 being 3,000,000 yen.

CHINA AND HER LANGUAGE

[By Sans Gants]

We firmly believe that there are many thousands of Chinese who feel that the restoration of monarchical rule in China will tend to enhance the strength of the Government because it will provide the means for a more effective centralisation of power, which will in turn be used in the interests of the people for the development of a greater and a nobler China. There will undoubtedly be numerous suggestions made by high officials with regard to a policy for the new Imperial Government, and it may be that many good and pertinent ideas will be advanced. It is with a view to placing before the Chinese suggestions for a fundamental reform that this article is being written.

There is nothing good in the world that the Chinese do not want. They want modern education, a strong army and navy, thousands of miles of railways, thousands of factories, and withal an enlightened people. It is also safe to say that there is nothing that the Chinese people want that cannot be had, and it is now for the new Government to take measures to give the people what they desire.

The success that a nation attains is in proportion to the number of its people who are possessed of an education that qualifies them to understand the age and the conditions in which they live, and it is the education and uplift of the masses that must receive the attention of the Government. China is now borne down by the weight of sheer ignorance, and this burden must be removed. China will have to formulate a policy which will tend to relieve the intense national suffering which is a direct result of the lack of education among the masses.

The millions in China are not prone to oppose anything that is for their own good. They are, for the greater part, given to a most practical turn of mind, and it is only necessary for the Government to point the way in order fully to utilise that practicability. The people are the most easily governed in the world, and this means they are the most law abiding. The Government has shown that it has the power to do things, and as long as this power is used in the direct interests of the people the people will stand by the Government.

It is time that the Government sought some means to assist the people to a realisation of their condition. The eyes of the people must be opened to the critical condition of the country to-day. The Central authorities are not aided by keeping the masses in ignorance of China's international complications. We have often heard Chinese make the statement that the Government of China must be a monarchical government because of the ignorance of the people, and we feel safe in saying that as long as the people remain ignorant a monarchy backed with ignorance is no safer than a Republic supported by ignorance.

What is lacking in China is a national feeling to replace the false pride of race which has long existed and which has wrought havoc to China and her millions. It is a pride which has been fostered by the scholastic aristocracy of China, which has on more than one occasion been the direct cause of China losing territory to the foreigner and a consequent continuous weakening of the nation. What is wanted in China is not a false pride of race, but a living and working patriotism, a national feeling that inspires China to move on and in pace with the other world powers, and one calculated to develop a China that is not satisfied to live upon the glories of a dead past.

The unseeing masses of Chinese must be made to see. The unappreciative masses must be taught to appreciate. In other words the policy of the new Government of China must be a policy that has for its very foundation the educating of the masses. A national spirit is not to be found where there is no spirit. The spirit of the people has been killed to a great degree by the oppression of the governments of the past. The greatest oppression the people can have inflicted upon them by the hands of the government is neglect of their education.

In Korea we have an example of a race which has been kept in dire ignorance by its government. The casual traveller upon the through express train from the Yalu to Fusan has but to look at the crowds of Koreans at each station to realise the effect of this action. Rarely can one look into an intelligent face. The expression upon the face of an average Korean is one indicative of lost ambition and individuality. Little spirit is shown except on the part of the few, though in some of the schools and the missionary gatherings it is an easier matter to detect hundreds of brighter faces. Such students have been taught to see and to realise their condition. There is a sense of understanding, and with this understanding comes the desire to act.

The Japanese Government is fighting the foreign missionary institution in Korea to-day simply because it is beginning to teach the people to see. The Japanese are not afraid of an ignorant Korea, but they do not want to see a Korea with an education and a developed spirit. As long as the Japanese can make the education of the Korean a Japanese education, and the national feeling in the Korean a Japanese national feeling, they will be satisfied, but otherwise they do not want it.

The present monarchical movement in China was made easy because of the ignorance of the masses, and it must not be forgotten that the ignorance of the masses will also be able to kill the new Imperial Government. Power in the hands of those officers of State who have the welfare of the people at heart is a constructive tool, but in the hands of the mere lover of power for the sake of power it is a most destructive instrument. Let us then hope that Emperor Yuan Shih-kai and his chief officers of State are bent upon benefitting the people.

China is ignorant because it has been kept in ignorance by the so-called educated few—by the scholastic aristocracy of past centuries. The average Chinese scholar is the most conceited and intolerant individual one could imagine. His motto has been the education of the few and the ignorance of the many. A well governed nation to his mind is one in which the masses ignorantly obey the dictum of the few. An educated mass would not give obedience to the mandates of the oppressor.

It seems strange that even to-day the destiny of this nation lies in the hands of four or five men. It is deplorable that this should be true, but because it is true they should make it their unceasing duty to effect a sweeping and radical change

The Government to-day has the power to effect any reform that can be proposed, but is there the will to reform? Is there still the feeling amongst those higher up that an ignorant China is far easier to govern than an enlightened China? It may be that it is easier to handle the masses as long as they are ignorant of what goes on around them, but it is true that with a continuation of such a policy China, as a whole or in parts, will soon be a subject nation to one or many nations.

The policy that will tend most to enlighten the people should, therefore, be the basic one of the new Imperial Government, and how to bring about such a policy, and how to carry it into effect is what must first be considered.

In studying the problem of general as well as special education in China we find that we are confronted with one great obstacle, and that is the written language and the diversity of dialects. This obstacle must be removed, and until it is removed to a great extent we will find an ignorant and a disunited China. The question of the written and spoken language is to all appearances the one great hindrance to the enlightenment of the race.

While it may seem a stupendous task to undertake to universalise the spoken and to simplify the written language, yet,

after all, it is a task that can be accomplished. There is nothing that this Government cannot do if it makes up its mind to act, and it should act in order to remove from the nation and her millions this one great obstacle to her future as well as present success.

If all the officials in the United States had to send in their reports to their superiors in Greek or Latin, or even in the old English of the time of Chaucer, we would find, as in China, thousands of stylists and copyists in each and every office of the government. This is true in China to-day. The present official class is supposed to be the educated class, but rarely is an individual found who can compose a report or a petition in the proper style, and if he happens to be able to do that much, it is more than likely that he is unable to write the characters in such a form as to present the requisite appearance of neatness.

It has been estimated that from fifteen to twenty per cent of the expenditure on the upkeep of a staff in any office of the government is absorbed on account of the employment of stylists and copyists. One who issues an order or a request is compelled to wait for hours before the stylists and copyists are able to turn it out in the proper form. If this state of affairs is true of government circles how much more true is it of the man in business.

In nearly every shop of any size in China there will be found a stylist and a copyist. The little shop on the corner or on some side street must seek a public writer or the secretary of some customer to write for him. The immense amount of time and money wasted daily in China in the cause of the style of writing and the making of neat characters is not only appalling but entirely useless.

Out of the approximately four hundred millions of dollars expended every year in China in the administration of the Government it will be found, after deducting the expenditure for the army and navy, that from twenty-five to thirty millions are spent in the upkeep of stylists and copyists. The hundreds of clerks found around the average government office are merely there to write. It would not be exaggeration to state that thirty per cent of the total number of employees in the various boards in Peking are there solely as penmen.

In government circles alone the language plays a great part in the matter of slow progress. It is safe to say that the average document of from four to five pages of ordinary size paper will take from two to three hours to compose and copy. It has been stated by an official of a certain Board in Peking that during the year 1914 the Board did nothing more than issue documents, and that when the time and money absorbed in preparation were considered the average price for each would work out to no less than two thousand dollars. This, of course, is an exaggeration, but it is not so very, very far from the truth.

When a person who pretends to be solicitous as to the hard work being done meets an official of any Board in Peking he generally asks if there are many "documents." It is the number of documents that represents the work done. In talking the other day with the head of a department in one of the Ministries we asked the department official if he had been very busy, and he answered by saying that he had received many documents, and in return had to prepare many. It is true that the time and money spent in writing and composing these official documents are wasted.

In most of the documents so prepared it is not the idea that has first place. It is first the style, second, the form of the character, and last the idea to be conveyed. Now, what has to be got into the heads of the people of China is the idea, and we do not care about having to club a man with an eight-legged essay before getting the idea into him. We often find that after administering the eight-legged essay club the man is physically exhausted, and while he may have succeeded in securing the idea he has lost his vitality in getting it, and he is no further use to himself or his fellowmen.

To educate the people means must be found that will be within the reach of the ordinary man in the street. It is the masses who ought to be educated and China must get to the point where she will burn up all the classics rather than keep the people in ignorance. A sacrifice will have to be made of style and form of character if we hope really to get to the point that we can secure a means for the education of the people.

The average Chinese child begins to study the writing of the character at the age of four, and from three to four hours a day is spent laboriously in the reading and writing of one particular character, the meaning of which he may not know for several years. This continual grind, day after day, without giving the child the necessary exercise to build up his physical form, has made many a scholar in the Chinese language, but at the same time an equal number of physical wrecks. From the standpoint of the health of the child the old-style system of learning is too great a strain. Why should a child of seven or eight years be made to recite whole passages from the classics? Such work is but a matter of memorising and by no means really develops the mind of the child.

It is but the privileged few who have the facilities either to employ a tutor for their children, or to send them to school. In nearly every instance the health and proper development of the child's mind and body are neglected. The child is made to do everything by rote. Not the least play is given to the development of his individuality. He learns what his ancestors said or did, but he does not learn to do for himself. He is made to believe that to equal the learning or behavior of some renowned ancestor is the acme of education. The young man is taught to live and think in the past. The great scholastic aristocracy of China have kept the masses in ignorance and have themselves been bound by the chains of ancient learning that has taught them to imitate and not to initiate.

There are foreigners who have criticised His Excellency Chu Chi Chien for tearing away the outer curtain of the Chien Men (the main Southern gate of Peking) because it seemed to detract from what they called the real Chinese achitectural effect. His Excellency the Minister of the Interior would deserve far more respect from those who want China to progress were he to tear down the whole of the wall and put in a wide boulevard for the use of the people. When the builders of the city lived there was necessity for having a wall; and appreciating that fact the wall was built. There is now no necessity for it, and the people should tear it down and make a roadway that would accommodate and facilitate traffic.

The Chinese have been made to live in the past and to cling to the past to such an extent that they are now about to lose their national entity. Of all the agencies that have made to this end none has equalled in strength that of the language, both written and spoken. The language has helped to localise or to provincialise the people. It has kept them from developing the broader view of life and its varied activities that have been the pleasure and the strength of other nations of the world. When China recognises that the curse of the nation is the language she will begin to make progress, but not until then can she seek to institute a campaign for the general enlightenment of the people with any hope for success.

In discussing the question of language education with some very intelligent Chinese recently we were surprised to hear them say that the inauguration of a change would be such a difficult task that the Government would not be willing to attempt it. They felt that there were other things that would be considered far more important. In one of the recent issues of a Peking daily newspaper we saw the statement that with the creation of the new Imperial Government the authorities intended to bend their energies to create a large and effective modern army. One thing which is certain is that the task of making a military machine is not half so difficult as the work of universalising and simplifying the language, yet has it occurred to any leading Chinese that a mere machine, without the national spirit, can do but little for the nation? A spiritless army can do nothing good towards the building up of the nation, and an army, if army is needed, is one in which the individual soldier should have some idea of what principles his nation stands for. The most foolish thing that China can do to-day is to attempt to build up a large army. At present soldiers constituting the various regiments are, on the average, men who know little and care little for the nation beyond receiving their bare living, and invariably can be easily bought up. If China has an army it should be one in which the mass of the soldiery are men who would not sell their country for a few hundred dollars.

The chief objective of the new government should be to create an enlightened China, and we venture to say that a united and enlightened China cannot be had without a radical change in the language used. China must so simplify and universalise the language that she will be able to enforce compulsory education. At present there are hundreds of schemes advanced by Chinese to bring about compulsory education, but nothing can be done until the language which is used as a medium can be more readily understood than the present one.

For the average Chinese student to know and understand the teachings of Confucius there is to our mind no necessity for him to have to be able to read the classics in the present classical style. To-day Confucius is to the few an understandable personality, but to the millions a mere sage who is talked about. The education that will count is the one that will show China and her history to the Chinese people, and by the Chinese people we do not mean a few thousands out of the many millions of living beings under the Chinese flag.

The Government's business is to instill into the people a real and living love of country. The people cannot realise this love unless they know what is being done by the Government, and what they themselves should do. Mere ignorant obedience to the mandates of the official class is not patriotism. The spirit that is needed cannot be had in a people who do not understand. A nation which develops the feeling of love for country and fellow subject will become a nation of subjects who will gladly lay down their lives in the interests of their homeland. The sacrifice that counts in this world is the intelligent sacrifice. There is no bravery in foolhardiness, but there is bravery when the man who sacrifices himself has an intelligent appreciation of the action he is taking.

The universalising and simplifying of the Chinese language is, therefore, the fundamental reform that should be taken in hand by the Government. We have spoken of the army and the matter of compulsory education, but in the promotion of commerce and industry this question is of the most vital importance. Every shopkeeper should be in possession of sufficient of the language to write a letter, and to be able to read any communication that comes to him. The impetus to the promotion of trade will be wonderful when the Government is able to reach the smallest merchant directly, for it will then be able to give the merchant the advantage of securing the latest, most up-to-date principles of commerce and industry. All the merchant wants to know is what he should do, and the Government must seek to come into closer contact with the merchant before being able to assist him.

There is an annual expenditure of something over one hundred million dollars for the upkeep of the army and navy, and at present the expenditure for the upkeep of the Ministry of Education will not amount to more than two million dollars. In other words, China is spending fifty times as much upon her army and navy as she is upon her education. Is this right?

China now intends to enforce compulsory education, and the idea is a good one, but how is this compulsion to materialise? What is to be the method adopted? Will the new Emperor merely issue a decree stating that every child has to go to school for a certain number of years between the ages of six and twelve? Will the Government have any plan for this proposed system of compulsory education beyond the mere formality of saying that the officials must open schools and make the children enter them? This is exactly what is feared will be done, and, if so, it is useless to discuss the matter. But we will presume that the Government really intends to put through a scheme to carry out compulsory education, and with this belief we will make a few suggestions we believe to be necessary to the work of ushering in the scheme.

The first question that will arise is the one of money, and this should not be a serious difficulty since the Government seems to have sufficient to waste upon useless objects. When it comes to financing the Ministry of Education there should be nothing for the Government to do but to at once cut down all useless expenditures, and in practical economy of government funds they will have sufficient to carry out any scheme of education. The people would far rather be taxed for the upkeep of schools for their children than for the support of an inefficient army and navy. Simple economy on the army and navy would provide the government at once with means to carry out a systematic campaign in the interests of education.

There are very few days in the week that mandates are not issued appointing Generals, Lieutenant-Generals, Major-Generals, Colonels, etc. An observer recently remarked that there are nearly as many Major-Generals in the Chinese army as there are privates in the American army. Of course, the retort will at once be made by some of the Chinese military that the American army is so insignificant that it cannot be called an army. England had at the outbreak of the War only 200,000 men in her Expeditionary Force, but she has now something like four million men. The United States likewise could raise an army of men amounting to some two million or more within a year if it were necessary to do so. An efficient army can be raised in a country where there is an enlightened and spirited people, but money is necessary to maintain an army, and in a country where there is protection for life and property there is money in abundance.

Would China suffer by cutting her army expenditure down from sixty to seventy per cent? How many men does it take at present to keep peace internally? How far would a few millions a year go towards building up a real military force by the opening of first class schools for the training of officers? To our mind an army of from six hundred to seven hundred thousand men is useless. If there were several millions of able bodied and enlightened patriots in China, would there be any difficulty in securing an efficient and patriotic fighting force?

Therefore, as regards the matter of money it is suggested that in the interests of the people the Chinese Government reduce the expenditure gradually upon the army and navy, and devote it to education. Instead of having a young army of uneducated generals let China have an army of school teachers bent upon the salvation of their nation by force of enlightenment rather than by force of arms. It is safe to say that the neighboring Island Empire will never allow China to possess an army of a formidable nature. It is not to the interests of this country. The Japanese know that a military machine not backed by an intelligent love of country is useless, and consequently fear of the present army of China as a fighting force is not to be entertained.

It would not be a difficult matter for the Chinese Government to save ten million dollars from the army expenditures during the first year, and devote that amount to education. In a period of three or four years the Government could easily have at its disposal some forty millions annually for the educational institutions of the country. That amount of money would enable the Chinese to work wonders in their present system.

The first thing in the matter of educating the people is the language—that is, the medium through which the education is to be given. The new Government should at once appoint a Board of Scholars for the Universalising and Simplifying of the Written Language. It is certain that such a Board could at once take up the question of the modification of the present style both in composition of the theme, and the form of the character.

While it is rather presumptuous for a foreigner to undertake to outline what the Chinese method should be in the matter of language, yet the idea of what is necessary can at least be suggested. It is first of all important that the written language should correspond as much as possible to the spoken language, and we shall take the mandarin dialect as used in Peking as the basis of the work of reform.

It has been stated by many that from thirty-five hundred to five thousand Chinese characters are sufficient for the daily needs of expression, no matter what the subject may be, and it should be the first duty of this Board to make up the vocabulary of the language. That is, a simple and concise vocabulary covering the characters that are in ordinary and constant use in the spoken mandarin, which is very direct and clear, should be first considered. There should be a Chinese dictionary for the man in the street, and this should contain the most useful of the characters. There should be a regular course of study covering a definite period of time that will be consumed in the mastering of this vocabulary. All text-books should be compiled from it, and the dictionary should be able

to explain any and all words used the first five years of the school life of the average pupil. In other words, the primary school education should be such as to give the pupil the use of these characters. There will be naturally the daily introduction into Chinese of new names for new things, and this can be easily taken care of by the Board. It would be well to use every character or combination of characters in the simple vocabulary as the nomenclature of new objects. It would be foolish to dig up antiquated or rarely repeated terms. In a purely scientific study of the sciences there will undoubtedly be many terms and expressions that will be rare, and such is the case even in foreign countries. While it is certain that a great many words will occur in the vocabulary that may not be found in the text-books covering the first few years of education, yet there should be no word used that is not in the vocabulary. The telegraph code alone is a fair example of the average limit of Chinese expression, and that code, we believe, does not contain over five thousand characters. It suggests that a complete canvassing of the language for those words found to be most often used and most expressive of meaning would evolve a most complete vocabulary for daily use. No text-book should be allowed in a school of certain grades unless it used the words that occur in this vocabulary. This could be easily enforced. The vocabulary should also be made to answer the purpose of high school education. Text-books should be compiled for the study of the vocabulary, the course covering a period of from five to seven years and not longer. In other words, it is necessary that the student be given time to learn a great many things without being burdened by the study of new and rare characters. For higher education, and purely literary courses, there should be further compilations of dictionaries, vocabularies, etc.

Another medium of great value for the propagation of this work is the daily newspaper, which should publish its news and its special articles in the simplified manner. The newspaper would reap the benefit as a result of increased circulation. Special magazines and periodicals, of course, should not be restricted, but in the case of the daily paper there can be restrictions. After the promulgation of the vocabulary all publications that are daily newspapers could be given one year within which to comply with the order, and thus every editor would begin to adopt the simplified style of writing.

It is known that the grass character is the easiest and the quickest to write, and it should be adopted. The strokes can be given in regular copy books, such copy books to cover the work of the vocabulary. The form in use now of the "correct character" should be abolished. The newspapers can be made to use type that corresponds with the grass symbols rather than the "correct character." This would also facilitate the change that must be made in the matter of simplifying the written form of the character. Another great and important aid that can be given to this most essential work is the use of the simple style and the grass character in all official documents. Every decree of the Emperor, all official correspondence of whatsoever nature, and all publications of official orders should be done in the simplified vocabulary and the grass character.

It is certain as time goes on that there will be a general extension of the vocabulary, and a more literary expression in style, but for the next fifteen or twenty years the Government should see to it that the new and simplified style be used as generally as possible. By merely issuing a decree backed up by the Government authorities its use can be made universal.

There will be hundreds who will consider such a proposal impossible and impracticable in its every detail, but we feel that if the Government is bent upon reform it will not be very many years before all will acknowledge its practical value.

With regard to universalising the spoken language there will be far more difficulty in consummating a scheme than with the written language. The only practical manner in which this work can be undertaken is by the employment of the mandarin pronunciation of every character used in the vocabulary. There should be in every town special schools established for the study of the mandarin dialect for those who have a knowledge of the character, and no one should be given a position in the government service who cannot speak this dialect.

There is one thing certain and that is that as soon as the official and student classes begin to use the mandarin dialect the time will come when nearly all of the people will understand it. By the enforcement of compulsory education, and the use in each and every school, no matter what the grade, of the mandarin tongue, it will not be long before there is a great proportion of the people who will understand it. It is a matter of time and perseverance alone that will change the dialect, or at least give the people a use of their local as well as the national spoken language.

In Korea to-day only the Japanese language is taught in the schools, and it will be a matter of only a very few years when the Korean people will be able to speak the Japanese tongue. Books upon the mandarin dialect should be published by the Government and sold at cost. There should be quantities of literature sent broadcast throughout the land in regard to the importance of the change in the spoken tongue. It can be done. There is nothing that cannot be done if there is only a will to do it.

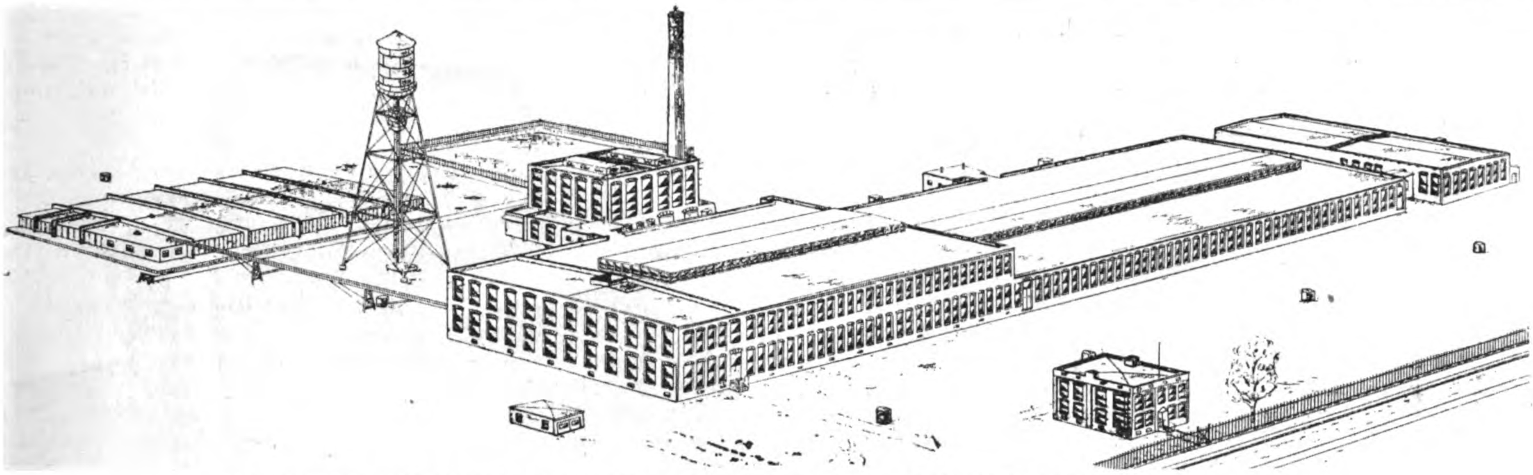
Of course, the language will not be changed in a year or even in ten years, but we dare say that within a period of forty to fifty years there will be an immense proportion of the people who will be able to speak, read and write mandarin. The whole thing depends upon how simple the start is, and how thoroughly the Government will carry out the scheme. It is hard simply because of the immensity of the task, but when the proposition is studied it will be found both practical and possible.

It would be a great thing for the new Government if the Emperor would issue as his first decree one that would tend to build up the very foundations of a new China, and there is no Imperial order that would assist more to the development of the nation than an effort upon the part of the Government to contrive to create a common written and spoken language. It is of the utmost importance to China that there be an intelligent carrying out of reforms, and there cannot be unless the people are thoroughly informed, and have reached a point in their education where they can grasp the necessity of the proposed reforms of whatsoever nature.

We sincerely hope that the Emperor will, upon the assumption of the Throne, look first to the matter of educating his people, and with this education will come an intelligent loyalty to the Government that would so strengthen the power of the enlightened official that the day when China will rank as a power among the nations will not be far distant. To our mind it is the language that is the greatest and practically speaking the only stumbling block to the further development of a great nation.

The nearer the Government is to its people the nearer will be the people to an understanding of the Government's undertakings. It is the bond of union between the people and the Government that we should seek to strengthen, and an uneducated people will never be able to understand unless taught, and in the teaching of them comes this great obstacle of the written language as well as the spoken, and whatever effort the Government may make in the direction of overcoming this great obstacle it will undoubtedly receive the support of the people in overcoming it.

The Government, upon undertaking such a work, should engage men with an excellent training as scholars, and above all men who will not cry *quit*. It is important that men be used throughout the Provinces who will undertake this work not as a means of becoming officials, but who really and truly want to help the nation advance. It would be very unwise to appoint men merely because of their scholarship, or because it is the desire of the Government to reward some meritorious official. Those appointed should be men who are workers, and not talkers. The Board in charge should be in Peking, and every assistance should be given those engaged. The power to accomplish something definite is in the hands of the Central and Provincial authorities and it is incumbent upon them to enforce whatever is for the common weal. There is no law for the good of the people that cannot be enforced with the voluntary approval of the vast majority. This article is written simply to point out what many believe to be the obstacle that the language as it is at present gives to any and all reform. It may be that there are hundreds who will doubt the manner in which we have proposed the reform of language, but it is the principle that we desire to advance.

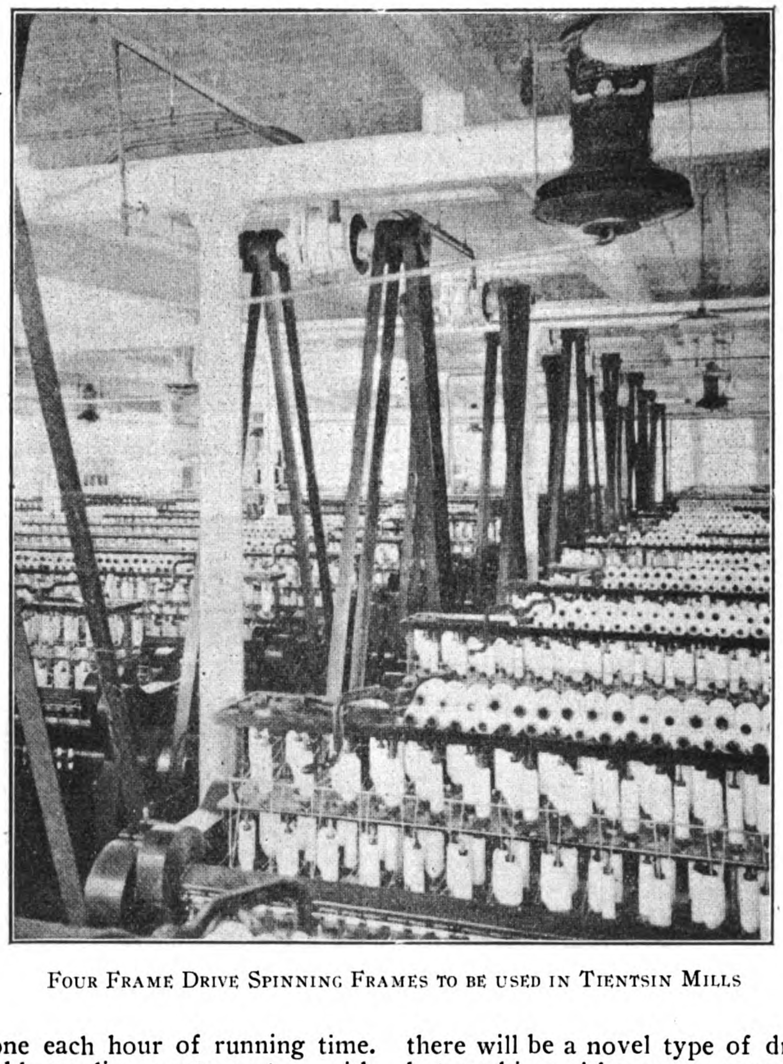


AMERICAN STANDARD COTTON FACTORY PLAN SHOWING PROPOSED ARRANGEMENT OF NEW TIENTSIN MILLS

AMERICAN COTTON MACHINERY IN CHINA

That American Manufacturers are fully alive to the remarkable opportunities at the present time for the introduction and sale of their products in China is again demonstrated by recent developments in the cotton manufacturing industry here. Contracts have just been placed with Andersen, Meyer & Co., Ltd., of Shanghai and New York, covering the complete equipment for two large spinning mills of 25,000 spindles each, to be built in Tientsin. All the machinery is to come from America, and the plans call for the most up-to-date and complete mills in China.

The machinery will be furnished by the Saco-Lowell Shops of Boston. This concern is the largest builder of cotton machinery in America, operating four large factories in the New England States, and employing between three to four thousand men. They are the only concern building a complete line of machinery to take the cotton from the bale to the finished yarn and cloth, and since their incorporation in 1845 have never been closed except for holidays. Of the 30,000,000 cotton spindles in operation in America, the Saco-Lowell Shops have furnished almost one half, and many of the recent patents on improvements in spinning machinery are in the control of this concern.



FOUR FRAME DRIVE SPINNING FRAMES TO BE USED IN TIENTSIN MILLS

These Shops were the first to introduce the manufacture of revolving flat carding engines in America and their output of this engine is now equivalent to one each hour of running time. They are the builders of the double carding waste system with four-coiler finisher cards which is particularly adapted for the shortest of Chinese cotton.

Besides the construction of machinery, the designing of mill buildings and their equipment has been a feature of their business for many years, and they employ a large force of draftsmen and architects under a competent engineer for the planning of mills of any size and for the manufacture of any kind of cotton goods on the most economical basis.

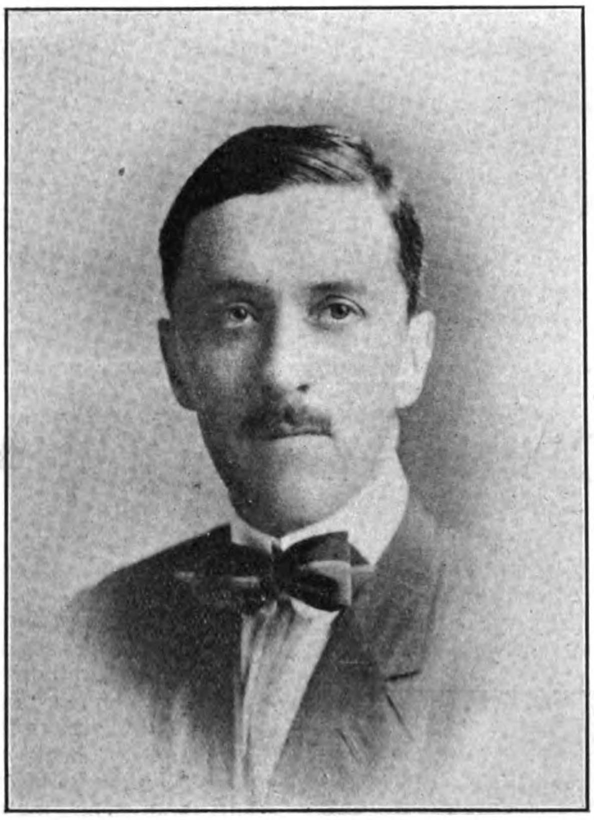
In July of this year they decided to attempt the sale of their machinery in China and sent out their Sales Agent, J. F. Havey, to assist their Agents, Messrs. Andersen, Meyer & Co., Ltd. The result has been the sale of two complete American mills within two and a half months, and the prospect of an increasing demand for their product.

The motors and turbines for operating machinery will be furnished by the General Electric Company of Schenectady, New York, U. S. A., whose name is already well known in China. They are the largest manufacturers of electrical equipment in the world. The turbines will be of the well known Curtis high pressure condensing type of 940 kilowatts output at 3,600 revolutions per minute delivering the current at 550 volts including all the most up-to-date attachments of the same type that is developing over 200,000 h.p. for cotton mills in America.

Many of the individual machines in the mill will be directly driven by General Electric Company motors—all of the machinery in the Scutcher Room being arranged for this type of drive. The Card Room machinery will be driven in small groups by motors suspended from the ceiling, and in the Spinning Room there will be a novel type of drive hitherto unknown in China, but working with great success in many of the mills in America, known as the "4 Frame Drive," where the motor is mounted on the ceiling and drives four of the spinning frames. With this arrangement the most efficient system demonstrated by innumerable tests in America is ensured to the new mills.

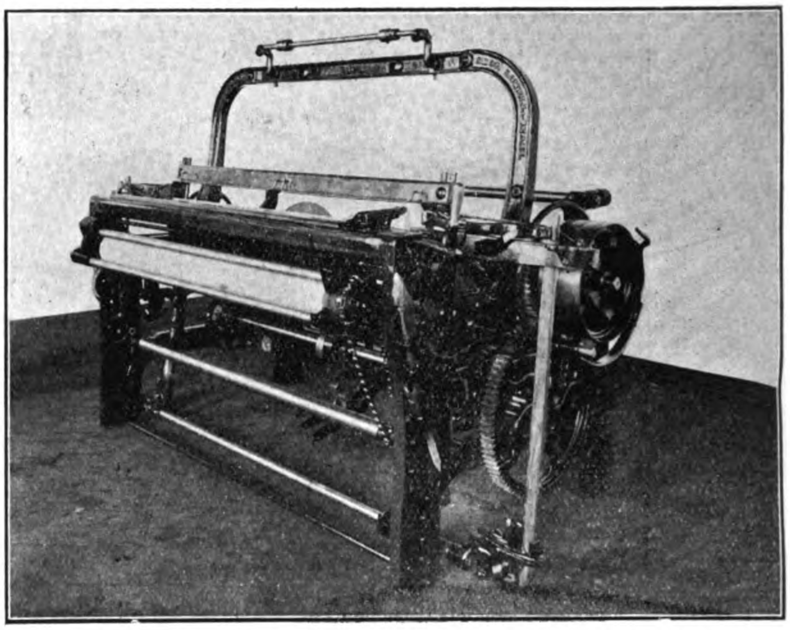
The boilers will be of the water tube type manufactured by Messrs. Babcock & Wilcox and will be complete with

integral superheaters and chain grate stokers, while the condensing plant will be of American manufacture furnished by the Wheeler Condenser & Engineering Company of Carteret, N.J.

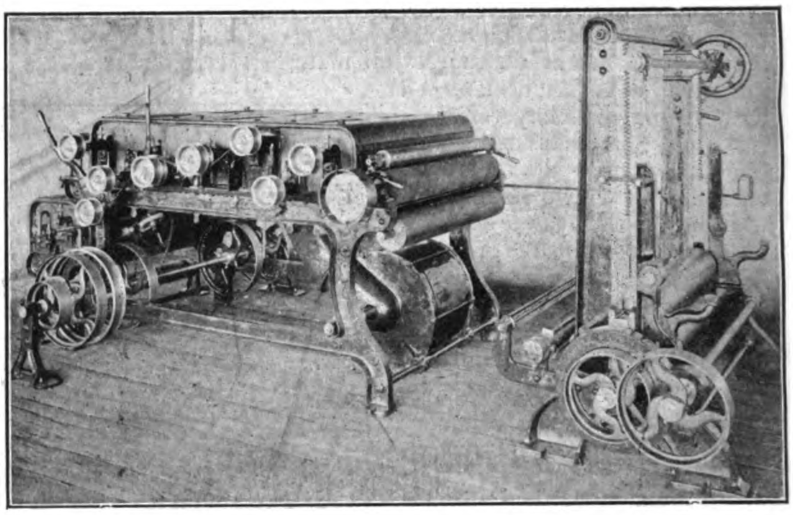


Mr. J. F. Havey, Sales Agent

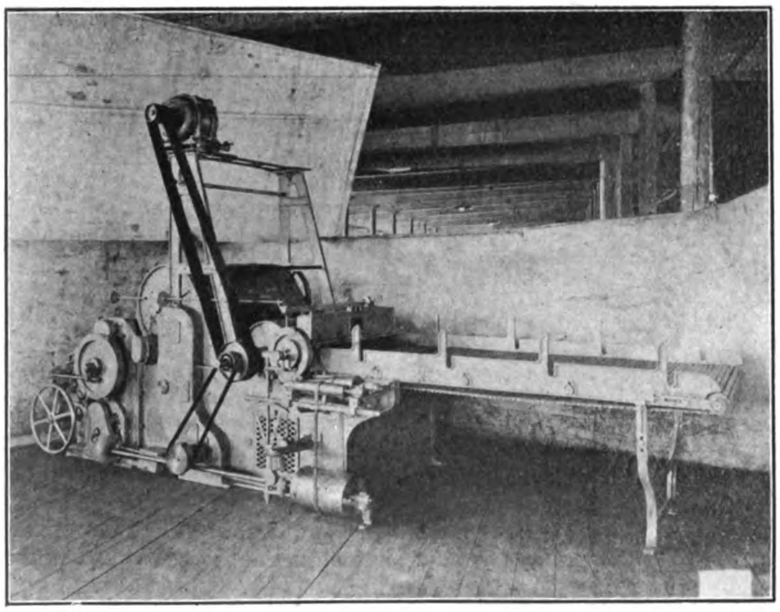
When these mills have been erected Tientsin can boast of having the most up-to-date cotton mills in China, and it will undoubtedly be followed by many more orders for this kind of machinery.



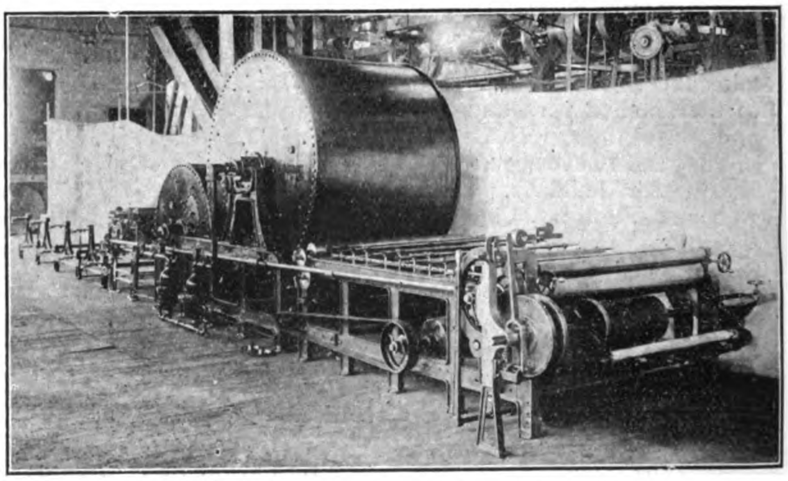
Saco Lowell Sheeting Loom—More than 1,000 now Operating in China



Machine for Shearing and Brushing Cotton Cloth



Finisher Scutcher for Cleaning Cotton



Cylinder Sizing Machine Set Up for Test in Saco Lowell Shops

COTTON CROP IN CHOSEN

The Seoul Press states that the present estimate of the cotton crop in South Zenra Province for this year shows an increase over the crop of last year of some 2½ per cent, making the total crop in that Province according to the present estimate 28,375,248 pounds. This crops shows an average production per 0.2451 acre of 463.1 pounds. A much better crop was hoped for by the authorities in this Province, which is the leading cotton district in Chosen, but the severe rains and the unseasonable weather during August hindered somewhat the growth of the plants.

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CONTENTS

	PAGE
Fossils of the Chinese Dragon	247
New Telephone system at Tientsin	248
Telegraphs in China	250
China and Her Language	251
American Cotton Machinery in China	255
Restoration of Monarchy in China	257
Japan, the Treaty Powers and China	261
Japan and China	262
The Maintenance of Chinese Independence and Intervention	264
Reformation of the Likin system	265
Industries of Shantung, The	265
Education in the Philippines	266
Federated Malay Railways	275
Philippine Auditor's Economic Accounting	280
Carbide of Calcium and its Uses	283
Gold mining in the Amur Region	285
Engineering, Financial and Commercial News	286

RESTORATION OF MONARCHY IN CHINA

The elections in the provinces of Citizens' Representatives to decide the form of government in China having been concluded and the balloting completed, the election in Peking next engaged attention. It may be remarked in passing that the balloting in the provinces was unanimously in favour of the restoration of the monarchical system and of the elevation of President Yuan Shih-kai to the Throne. Moreover, from all parts of the country telegrams were sent to Peking urging that the advice given by the Powers to postpone the change in the form of government should be disregarded, and protesting indignantly against foreign interference with China's domestic affairs. In this connection it is of interest to remark that Lord Robert Cecil, the British Under-Secretary of State for Foreign Affairs, replying to a question in the House of Commons on November 22 said: "The representations of the Ministers of the Entente Powers to the Chinese Government regarding the monarchical movement were received by China in the same spirit of friendliness in which they were offered. It did not appear to be necessary at present to take any further steps." Sir Edward Grey also announced that only one British concern had expressed apprehension lest the proposed change should lead to disorder.

Before the elections were conducted in Peking a new situation was created by a report emanating from Washington to the effect that Great Britain, France and Russia were making united efforts to induce China to join the Entente. Rumourmongers began at once to get busy, and it was affirmed that China had signified her willingness to join the Entente if the monarchy were recognised. In the Japanese Press much chagrin was manifested and this was increased by a ridiculous report that an Anglo-Chinese Alliance had been concluded. This stupid canard was effectually disposed of by an official statement by Sir Edward Grey that Great Britain had no intention of entering into negotiations of a political nature with China except in consultation with Japan, thus reaffirming Great Britain's adherence to the engagements made in the Anglo-Japanese Treaty of Alliance. In the meantime, however, conversations took place at Tokyo and Peking between the Entente diplomats in an endeavour to find some method of counteracting German intrigue in China. At the moment of writing no decision had been arrived at, as Japan was opposed to inviting China to join the Entente. On December 2 the Chinese Foreign Office issued a statement to the effect that the Chinese Government had never received any proposal to participate in the war, nor had opened any negotiations with any Power or Group of Powers. The Chinese Government had never considered the possibility of abandoning its neutrality and joining any belligerent or group of belligerents.

It was announced on December 2 that the Central Elections for representatives of the Chambers of Commerce and the Oversea Merchants to vote on the change in the form of government would take place on December 5, and those for the Manchus, Mongolians, Meritorious Persons and Profound Scholars would be held the following day. Twenty four candidates were to be elected for the Manchurian and Mongolian Banners, sixty for the Meritorious Persons and twenty for the Profound Scholars while the Chambers of Commerce and Oversea Merchants were to elect sixty representatives. The elections duly took place at the former Parliament Buildings. A number of foreigners were present, and the proceedings were conducted with the utmost care and orderliness. There was not the slightest indication that any influence was brought to bear on the voters. On December 6 it was noted that among the voters who attended, numbering over 6,000, there were several members of the Ching Imperial Family. The following day the opening of the ballot boxes and the counting of the votes were carried out at the Parliament Buildings under the supervision of Mr. Chu Chi-chien, Minister of the Interior, in his capacity of Superintendent of the Central Elections.

The final balloting by the representatives chosen at the primary elections took place at the Parliamentary Buildings on Friday, December 10. There was a large attendance both of

Chinese and foreigners. The representatives deposited the ballot papers upon which was written their name and the manner in which they voted in a ballot-box which was locked after the last ballot paper had been deposited. It was then unlocked under the supervision of Mr. Chu Chi-chien and Mr. Ku Ao, the chief of the Bureau of the Convention of the Representatives of Citizens. An official then counted the votes to see that all the 134 representatives had voted, after which the names of the voters and the incidence of their votes were read out. Each of the 134 had voted "Tsan Cheng" signifying "approve," and the Central Electorate, therefore, had followed the example of the provinces in unanimously voting for the establishment of a Constitutional Monarchy. The formal announcement to this effect by Mr. Chu chi-chien was received with applause. Much greater applause greeted Prince Pu-lun, a member of the Imperial Ching Family, when he ascended the platform and proposed that President Yuan Shih-kai should be asked to ascend to the Throne. The representatives unanimously adopted the proposal and a petition was drawn up beseeching the President to accept the crown.

The Tsan Cheng Yuan (Council of State) on Saturday, December 11, made the final scrutiny of the votes cast. The Secretary of the House reported that the number of votes cast by the Representatives was 1993 and that they were all in favour of the establishment of a Constitutional Monarchy and of nominating President Yuan Shih-kai as Emperor. The Tsan Cheng Yuan then adopted a memorial and a petition to the President asking him to accept the crown.

The memorial was in the following terms:—

"At the request of the citizens of this country for a change of *Kuo-ti* this House some time ago decided that the question should be decided by the Convention of Citizens' Representatives, and at the same time a bill was passed and forwarded to the President for promulgation and enforcement. We received from time to time despatches and telegrams from Superintendents of the Convention of Citizens' Representatives of various provinces and Special Administrative Areas reporting the organization of the Convention of Citizens' Representatives according to the provisions made in the law, etc. We also received despatches and telegrams from the Convention of the Citizens' Representatives from various places reporting the number of votes deciding the form of State and forwarding the same to us. They all entrusted this House to act as the Representative of the Convention of the Citizens' Representatives, etc.

"Consequently to-day—the 11th day of the 12th month—this House held a meeting to 'investigate' the votes. There are 1,993 Citizens' Representatives for the whole country and the number of votes in favour of the Constitutional Monarchy is 1,993. Thus the will of the people of the whole country has decided that the form of State should be a Constitutional Monarchy. Therefore hereafter with the exception of those which are in conflict with or unsuitable for the form of State, all the laws and mandates of the Min Kuo shall continue to be in force.

"Again the House has received despatches and telegrams from the Convention of the Citizens' Representatives of the provinces and Special Administrative Areas unanimously recommending the present Great President to ascend the Throne as Emperor. As there has been a common system applicable to the Imperial Family of all the past Dynasties, the Law on the Election of Presidents should now be abolished.

"We respectfully enclose herewith a list of the numbers of votes deciding the *Kuo-ti* from the Convention of the Citizens' Representatives, the petition requesting the enthronement sent by the Representative of the Convention of the Citizens' Representatives, and those by Representatives of the provinces and Special Administrative Areas and the despatches and telegrams from various classes of people recommending the ascension to the Throne. We submit them all to the President for investigation and enforcement, etc."

The list showing the numbers of votes deciding the form of State by the Convention of Citizens' Representatives. All the votes are unanimously in favour of Constitutional Monarchy:

Chihli:	119	votes	Anhui:	60	votes
Fengtien:	56	,,	Kiangsi:	81	,,
Kirin:	37	,,	Jehol:	15	,,
Hunan:	75	,,	Chahar:	7	,,
Shensi:	90	,,	Shuiyuan:	8	,,
Kiangsu:	60	,,	Chin Chao:	20	,,
Shansi:	102	,,	Kueichow:	80	,,
Fukien:	62	,,	Yunnan:	96	,,
Hupeh:	69	,,	Kansu:	76	,,
Kuangtung:	64	,,	Szechuan:	146	,,
Chekiang:	75	,,	Szechuan Frontiers:	25	,,
Shantung:	107	,,	Kuangsi:	77	,,
Heilungkiang:	22	,,	Sinkiang:	40	,,
Honan:	108	,,			

Inner and Outer Mongolia, Tibet, Chinghai, Mohamemdan regions: 52 votes.

Eight Banners of Manchu, Mongolian and Chinese: 24 votes.

Chambers of Commerce and Oversea Chinese: 60 votes.

Those who have rendered meritorious services to the country: 30 votes.

Scholars and men of profound learning: 25 votes.

The total number of votes is 1,993, all of which are unanimously in favour of Constitutional-Monarchical form of State.

First Petition to the President

Accompanying the memorial was the following petition.

"In consideration of the fact that the question of Kuo-ti has already been settled and the will of Heaven is clear, the people of the whole country, now beseech thee to ascend the Throne at once so as to consolidate the foundation of the State. It is with this in view that we now submit this in a united voice for the holy consideration of Your Majesty. Information has already been conveyed to the Government by the acting Li Fa Yuan reporting on the unanimous decision in favour of a constitutional monarchy as a result of balloting by the representatives of the provinces, the Metropolitan Prefecture, the Special Administrative Areas, Inner and Outer Mongolia, Tibet, Chinghai, the Mohammedan regions, the Banners of Manchuria and Mongolia, the Chambers of Commerce of the whole country, the meritorious people, and profound scholars.

"At the same time petitions have also been received from the same bodies, stating that the will of the people is in favour of Yuan Shih-k'ai, now President of Chung Hua Min Kuo, being respectfully designated Emperor of the Empire of Chung Hua and be invested with supreme and absolute sovereign rights and authority so that he may become Emperor and set up a great dynasty in obedience to the will of Heaven and hand down the same to endless generations. The Li Fa Yuan has also been in this connexion advised by the representatives to act as the principal body of representatives and in this capacity to beg, on behalf of the people, the Emperor to ascend the Throne.

"We are of the humble opinion that it takes a person of highest benevolence and deepest love to protect the people and maintain the situation and a man of great military achievements to suppress rebellion to be worthy of the choice of Heaven and to become an Emperor and rule over a consolidated country. The Book says: "The merit is of one man but millions of people depend on it.' The Odes says: 'Only one who is chosen of Heaven can be worthy of a continuous inheritance of the Throne.' It is thus seen that it is only by complying with the wish of the people in obedience to the will of Heaven that the people will submit and Heaven will approve.

"Formerly the Emperors of Tsing abused the authority of the State and the people were thrown into "fire and water.' The latter cried but their voice was unheeded; thus the already dangerous situation was precipitated. The Emperor finally denounced his own faults but the people could not be moved thereby. He gave orders but the soldiers refused to obey.

"Our Holy Master then appeared in response to the call of the time and the people within the confines of the four seas followed him in absolute obedience. Those who were once rebellious became reformed at heart and those who were loyal were willing to sacrifice their lives. Our Holy Master then consolidated and placed the precarious country on a foundation of safety. Forced by circumstances the Tsing Emperor abdicated the Throne. The Throne was vacant for our Holy Master but our Holy Master did not seize it. In haste a provisional government was established at Nanking but as partisans were then holding power only undesirable men were given official posts. The people became disturbed and were at a loss to know on whom to depend for safety. The benevolent influence of the Highest Virtue of our Holy Master, however, compelled the near people to live in peace and those in distant places to bow to his rule. The people flocked to the benevolent person like the water flowing to a lower level; and in this way the people, who were at the point of death, were saved and nursed back to life by our Holy Master. Compelled by circumstances the Government at Nanking was dissolved. The Throne was once more open for our Holy Master but our Holy Master again refused to take it.

"Finally the Min Kuo was established and the people of the four points of the compass received the blessings of peace. The flock of degenerates however stole the power of government and indulged in their old practice of corruption.

"The wrath of our Holy Master was roused to a terrible degree and his awe-inspiring force was brought to bear on these people. The punitive expedition of Heaven achieved complete success within five scores of days. Since it was a case of extreme benevolence punishing the extremely uncharitable, there was no fight in face of the punitive force. Those who were longing for the righteous and just one took the lead in surrendering and thus received the blessings before all other men; while the short-sighted ones finally also came in and cleansed their hearts. All these people were given life and protection by our Holy Master. When the great disturbance was suppressed and the country became one united land the Throne was again open and properly belonged to our Holy Master, but our Holy Master was firm in his modesty and once more refused to take it. A holy sage may be great and all powerful but he will not benefit himself by taking possession of an empire. But the people are bound to submit to the one who is worthy of it, since they must consider wherefrom they receive their life and peace.

"At the time of the beginning of the new regime the members of the Tsan Yi Yuan elected a provisional President. Even then the hearts of the people of the whole country were leaning towards our Holy Master, and thereby the foundation of the country was greatly consolidated. The Republican form of State, however, is not suitable for the existing conditions of the country, for while it is incapable of laying any great

schemes for the development and expansion of the nation, it is also incapable of giving blessings of permanent peace to the people. The reason is that when the people make a sacrifice in one way they expect a return in another. It is also true that when the people decide to abandon one form of State they must have in their mind another to take its place.

"Now Heaven has answered the prayer of the people, who are one minded in longing to establish a monarchy and designating an Emperor.

"So far as our civilisation and ordinances are concerned Chung Hua has been a monarchical nation for five thousand years.

"Your Majesty, superlatively wise and divinely valiant, is one to whom the whole of the people turn in submission. We prostrate ourselves and pray that thou wilt accept the blessings of Heaven and descend to the level of accepting the request of the country. Ascend the great Throne and shepherd the whole people; rise to the highest place and control the multifarious affairs of the State. Descendant of the Huang Ti, Thou art worthy of the Throne by the Choice of Heaven. Rule over the people to countless generations as the predecessors of the Chow Dynasty."

The President's Reply

In response to this petition the President sent the following reply.—

"I hereby acknowledge receipt of the list of the numbers of votes for the decision of the *Kuoti* from the Convention of the Citizen's Representatives, the petition recommending the enthronement from the Representative of the Convention of the Citizens' Representatives, and the Citizens' Representatives of the provinces and Special Administrative Areas, etc.

"According to the provisions made in the Constitutional Compact, the sovereign authority of the Min Kuo is lodged in the whole body of citizens of this nation; and as all the members of the Convention of the Citizens' Representatives have decided to change the present form of State into that of a Constitutional Monarchy, I, the President, have no right to discuss the question any more.

"However I was very much surprised at the recommendation requesting me to ascend the Throne. Heaven, which created the people, has ordained an Emperor for them, and its Grand Decree is unchangeable. It is certain that only a man of extraordinary merits and great virtue is competent to ascend the Throne. During a period of thirty years of my political life, I, the Great President, have encountered many ups and downs, hence I have achieved nothing important.

"Since the inauguration of the Min Kuo, four years have elapsed, during which troubles have come in quick succession, and many mistakes and blunders have been made. Much time has been expended in applying remedy to the past errors, therefore we have not been able to improve the administration. Thus there is no special merit worthy to be mentioned.

"When I lived in retirement in Honan, I had not the least idea to return to official life; but during a time of difficulties I was recommended by public opinion, and I was obliged to come out to maintain the situation, sacrificing myself for the salvation of the nation. In the winter of the *Hsinhai* year, I occupied a most responsible post; but I was unable to further the welfare of the nation and the interest of the people.

"When I think of the former Emperor, I am very much ashamed. If I should now ascend the Great Throne my heart will not feel at ease. Thus I feel diffident when principle and morality are considered. Moreover in fixing the administration of a country and devising protection for the nation, faith is the main thing.

"When the Min Kuo was inaugurated, I, the Great President, took an oath in the Tsan Yi Yuan promising to maintain and develop the Republic with all my power. If I should now assume the Imperial Title, I would break the oath. I will not be able to give any explanation for the breach of faith. When the formal inauguration of the President took place, I, the Great President, did sincerely declare that 'my heart knows nothing but the salvation of the nation and the people. I do not care whether my efforts will meet with success or failure, difficulties or comforts, praise or slander.' As it has been my object to save the people, it seems that I should sacrifice everything. I have to attain the object.

"But when I ponder over the matter, I feel that my merits are too small, and on the other hand it is impossible not to give due consideration to principle and faith. I am sure that the Citizens' Representatives who love me will not force me to do what is difficult. It is hoped that the Representative of the Convention of Citizens' Representatives will consider the question carefully and thoroughly, and that another person be recommended to the Throne, to the end that the foundation of the nation may be consolidated.

"Meanwhile I, the Great President, will retain the present title and the executive power of various departments, and maintain the present situation of the country. Besides replying to the petition of the Acting Li Fa Yuan, and returning to the Acting Li Fa Yuan the petitions recommending enthronement from the Representative of the Convention of Citizens' Representatives, and the Citizens' Representatives of the various provinces and Special Administrative Areas, we hereby promulgate this mandate for general information."

The Second Petition

After the receipt of the President's rejection of their petition the Tsan Cheng Yuan decided to submit a second petition in the following terms:—

"On account of the earnest desires of the people we beg again to memorialize Your Majesty to ascend the Imperial Throne to the end that the heart of the people may be satisfied and the behest of Heaven may be complied with.

"In reply to the petition requesting early accession to the Great Precious Throne submitted by this House in its capacity of Chief Representative of the Convention of Citizens' Representatives, we have been informed that Your Majesty was surprised to learn of the desire of the people recommending Your Majesty to the Throne, etc.

"We sincerely admire the virtue and high ideal of Your Majesty which defy description. However we must point out that at this time the feeling of the people has run very high, and it is not advisable to suppress the great desire of the people who have shown great sincerity in sending up their requests. If our Emperor should still remain obstinate and modest, refusing to accept the offer, it is feared that the people of the whole country will "fall into the deep abyss," because if the Great Throne be left vacant for a long time, all the machinery of Government will be upset. It is not right to place the nation in a critical condition simply for the sake of observing little scruples.

"Again in the Mandate it is stated that 'Heaven, which created the people, has ordained an Emperor for them, and only one who has virtue is entitled to the Throne'; and that with regard to your own merits, achievements, virtue, and faith, Your Majesty does not feel satisfied. The above only shows that our Emperor is a man of humble mind, although he is not aware of his own great merits. However we have kept our eyes and ears open and must point out what we have observed. We must first point out meritorious services of our Emperor.

"At the end of the late Tsing Dynasty military preparations were greatly neglected. Troops repeatedly raised disturbances, and for a long time the dignity of the nation could not be maintained. Our Emperor then organized and trained the Army according to the best method of the civilized nations. All accumulated corruptions were abolished, bringing new life into the barracks; and fixed rules and regulations, providing for every detail of the army. He made a selection of men of talents and ability and enforced a strict discipline. Men of extraordinary skill and knowledge served under him, and in the short period of a few years they were appointed to responsible posts all over the country. Great success was obtained and his influence spread everywhere. The military system has been praised by foreign observers. The above is the beginning of the military system of this country. No doubt the suppression of rebellion, etc., in later days was due to his military reforms. This is the merit of the Emperor in connexion with military affairs.

"When he was Governor of Shantung the Boxer Trouble broke out. Allied troops entered the capital, the Imperial Court removed and travelled to another place, and the situation of the nation was most deplorable. Our Emperor fixed his position in his province as impregnable as the Great Wall. Seditious 'tufei' were afraid of him and the alien soldiers did not come down to his province. The eastern and western parts of the country were protected by him; and by maintaining the order and peace of one province all disasters for other provinces were averted. Although the capital was lost and the whole country was disturbed, peace was restored out of great dangers. The troubles were created by the seditious people, but they were instigated by members of the Imperial family. Negotiations for peace were refused because the promoters of the trouble were not punished. The troops of powerful neighbours were on our territory, refusing to return to their own lands, and the dismemberment of the country was almost inevitable. No one dared to make any suggestion as the Chief of the Boxer Movement was at the helm of the Government. Our Emperor then submitted a private memorial to the Throne recommending the execution of this Chief, and after the execution, both Chinese and foreigners were satisfied, and a peace was concluded, thus averting the dismemberment of this country. This is the merit of the Emperor in preserving the national existence.

"After the above he was appointed Great Minister of Peiyang. Consternation still occasionally seized the people, whose mind was not yet settled. He suppressed bands of 'tufei' leaving no hiding place for robbers and thieves; and cleared all outstanding cases securing reconciliation for the people and Christians. He took over the control of Tientsin and Peking after the great work of destruction, and secured the return of the Imperial Court to its original palace. He devised great policies and introduced all reforms and 'civilizations.' His plans were all far-reaching and well-devised. All regulations and systems were grand and practical. Some have said that our Emperor is a source of civilization and enlightenment, and their praise is not a false one. This is the merit of our Emperor in connexion with the furtherance of the civilization of this nation.

"When the revolution broke out with irresistible force like storm and tide, in a few months the whole Government everywhere was disorganized, and the Imperial family was shaken to its foundation. Heaven showed its hatred to the late Tsing Dynasty and the heart of the people desired disturbances. Empress-Dowager Hsueh-ting knew that her Imperial Cause was hopeless, and the Manchus were isolated and helpless. She was at her wits' ends, crying and weeping in the Court knowing not what to do. At this critical juncture had our Emperor in compliance with the will of Heaven and men ascended the Throne to 'pacify the Four Seas," who would have blamed him? However he acted as became a true subject, maintaining the difficult situation, and he was almost killed by a bomb so regardless was he of his own safety. Empress-Dowager Hsueh-ting then gave him full authority to organize a republican Government, and requested him to preserve the Imperial House.

"Our Emperor then proceeded with the Negotiations between the North and the South, and devised the Agreement of Favourable Treatment for the Imperial Family. The public only knows the ease with which the Manchus parted with their regime and the good result obtained, but it has not realised the difficulty and hard labour of our Emperor in bringing about the great change. Consequently the North and the South

have been consolidated, the Tsing Family has been preserved, the four hundred million inhabitants have been saved from misery, and the two hundred million *li* of territory have been protected amidst the great political storm sweeping over this country. Peace and tranquillity have been restored in this Republic of four years, and people and Government have been saved from destruction. This is the merit of our Emperor in connexion with the suppression of disturbances.

"Immediately after the establishment of the Republic, the demagogues and bad characters rose to power. They then became prominent in political parties, in legislative assemblies, in official circles and in military camps. They used every means to stir up the feelings of the people against the Government in order to handicap the latter from exercising its administrative authority. Our Emperor showed them then a spirit of toleration which knew no bounds. But in spite of this they did not make any efforts to restrain their wild ambition. Finally, rebellion broke out in Kiangsi and Nanchang and the South Eastern provinces were again in a state of disorder.

"Thanks to the 'divine projects' and the efforts of the troops, the atmosphere charged with inauspicious omens of disaffection and rebellion was purified in a month's time and the formal Presidency was inaugurated amidst the cheers and acclamations of the friendly Powers. Being thus baulked, the rebels made secret alliance with the White Wolf brigands and abetted their lawless cause. On the arrival of the government troops, the chief of the brigands was captured and the Celestial Continent was restored to order. The military men laid down their arms and tranquillity has since reigned supreme in every locality of the country."

"We have now attained a high state of peace and prosperity. It can hardly be denied that the country would have already lost its national existence in any of the troubles, such as the Boxer Rising, the Revolution of 1911 and the Rebellion of 1913 but for the efforts of our Emperor, without whom the people of this nation, the descendants of a holy race of four thousand years old, would not be able to settle in this land without sinking into a state of serfdom. This is an unparalleled service which our Emperor has rendered to this country and it should always remain green in our memory for generations to come. This is the fifth merit which the Emperor has achieved in suppressing disorder and saving the country.

"Moreover, it should be remembered that since the nation came into contact with the outside world we can hardly enumerate the faults which our former diplomats have committed in their dealings with the foreign Powers. The international status of this country has become a non-descript thing. The country has been in a state of uttermost weakness, maintaining its independence among the ambitious world Powers. There are no words to describe the danger and instability of the position of this country. Worse than this has been the repeated occurrence of unexpected diplomatic incidents, for which no precedent can be cited for their settlement. Should the Government err but a hair's brearth in their foreign policy, the trouble and danger ensuing would be unimaginable.

"Only our Emperor with his unusual sagacity and wisdom never fails to solve any perplexing diplomatic problem and smoothly settle the question at issue with the foreign Powers. The foreign Powers have paid their due respect to the Emperor for his unique personality and reputation and showed him friendliness and good-will. Through diplomatic channels, differences between this country and other powers have been sunk into oblivion and the bond of friendship has been strengthened. This is the sixth merit which the Emperor has achieved in diplomatic affairs.

"These six merits enumerated above have been the keystone on which the existence of the nation and the safety of the people have depended. The other services which the Emperor has achieved are so numerous and varied that the same cannot be fully enumerated without fatiguing one. In consequence of these, the merits of the Emperor surpass those achieved by any of the rulers of bygone days.

"As to the virtue of the Emperor, it knoweth no bounds. His personal integrity is so chaste that it may be compared with that of Heaven. Verily it can hardly be tested by short-sighted people. Behold how the inauguration of the present Empire which is to succeed the 'former one' hath caused him uneasiness of mind. The Edict just issued describes this feeling in terms of shame. This throws light on the kindness and benevolence in the bosom of Our Emperor which have forced him to make such a statement.

"During the last twenty years, instances are not lacking to prove the loyalty and devotion of Our Emperor to the former dynasty. The performance of his duty as a Minister to the late dynasty has been excellent. But unfortunately, the administration of the late dynasty was by no means efficient and it became more so towards the end.

"The trouble of Keng-tse (Boxer trouble) was started by a handful of youths, who provoked war and made China an unprecedented laughing-stock; and they were within an ace of terminating their lineage.

"The House of the Tsing dynasty would have overturned had it not been for our Emperor, who checked the rush of the mighty tide and prevented a disaster that nearly reached the sky. However, as the position of our Emperor became more exalted his endeavour to secure peace for the Manchu house was more manifest. In view of the weakness of the Manchu tribes, he hastened to train a corps of Manchu troops. To remedy the ignorance of the Manchu nobles he memorialised the throne to send them abroad to gain knowledge. To bring order out of the chaos of the administration he fixed official systems; and to nullify the choking influence of old customs he drew up the constitution. All these matchless and great schemes were masterly plans for the ruling of the nation; but the great statesman was not taken into confidence by the Court, as many patriotic men were shunned while relatives of the Throne interfered with the administration and monopolised the reins of the Government. Corruption was the order of the day and military operations were looked upon as play, thus the vitality of the country was sucked and exhausted. The conditions in the administration became even worse than ever when our Emperor lived in retirement for three years.

"When the rebellion broke out at Wuchang our Emperor was hurriedly entrusted with the great task. Even then he made it his duty to preserve the already dying dynasty. The situation was, however, already beyond remedy for financial resources were entirely exhausted while revolt broke out everywhere. The supply of men and materials for war was cut off and all the strategic points were lost to the Government. Tidings of disquieting nature came to the Capital, which was the only place not affected, and the tribes on the Mongolian and Tibetan borders were also reported to be in a state of rebellion. Yet in addition to this the 19 articles of the Imperial decree practically surrendered all the sovereign rights of the then Emperor. This, brought about by whomsoever he might be, was unsuspected by our Emperor. Although he later entered the Cabinet the danger of the situation was such that all hope was lost. Out of devotion to the country he practically forgot to sleep and to eat, but passed his days in tears. The situation was so precarious that neither offensive measures nor defensive would have availed; he was therefore powerless to save it. Had the Court been immune to backbiting, while the young Emperor ascended the throne and entrusted the important affairs of state as well as its effective control to the veteran statesman, it would have resulted in the administration being improved in every detail and all the neglected things attended to while the signs of successful administration would have manifested themselves and rebellions would have disappeared. Thereby the revolution of Hsin Hai could not have taken place. Making the best of the situation he had resort to the special articles guaranteeing the preservation of the continuation of the Manchu lineage and their tombs and family Temples. These were all ordained by Heaven and so beyond the power of men.

"As far as our Emperor is concerned, he did all he could for the Tsing family wherever duty and obligation called. As to the succession to the Throne, it is within the control of men. Formerly the Tsing dynasty abdicated the Throne, in view of the then situation, in favour of the Republic; and now the people of the Republic unitedly designate our Divinely Holy One as the Emperor. Within a space of four years two changes in the regime have taken place. As the power of rulership has long been lost to the family of Aihsnchiolo there is no cause to rouse the feelings of Manchus. On the other hand there is still a man who can found the Empire of Chung Hua; and the pomp of an Imperial regime will once more be before us. As the rise and fall of dynasties pursue a prearranged course, there is no need to adhere to the original lineage. Besides, the fact that the new dynasty will give protection to the members of the ex-dynasty evinces the magnanimity of the former. Of all the dynasties of the myriad-years-history of China, there is not a single one which can compare with the present regime in its un-impeachable character. Yet our Emperor still insists that his virtue is unworthy of the offer. In truth, however, even the modesty of Wen Wang in serving the House of Yin is in no way a superior example; while the case of King Tang, who hesitated to ascend the throne because of the possibility of hostile criticism cannot stand comparison. Thus we see how the virtue of our Emperor surpasses far that of any king of our ancient history. Therefore, the passage in the decree saying that he is meritless, etc, is an expression of his modesty and so cannot be used to suppress the craving of the people.

"As to the Presidential oath which contains the expression of expanding the Republic, these were mere formal words of the Chief Executive of the Republic and a part of the ceremony to celebrate the inauguration of the President. The oath was based on the position of the Chief Executive and the position of the Chief Executive was based on the form of State of the Min Kuo, and finally the form of State of the Min Kuo was fixed according to the will of the people. The chief Executives should move only according to the wish of the people. If the wish of the people is for the Republic, then the oath is valid, and binding. But if the wish of the people is for a constitutional monarchy, then the validity of the oath changes with the change of the form of State. But now the people are tired of the Republic and are clamouring for a constitutional monarchy. In other words the wish of the people has now changed and the form of State is changed with it. The position of the Chief Executive of the Min Kuo no longer exists; and the oath of the Chief Executive of the Min Kuo is made null and void thereby. All these are measures by which the people consolidate their own position, and therefore have nothing to do with the Emperor. As our Emperor holds the State before everything else and follows the will of the people as his guide, he cannot be said to have any prejudiced view; therefore it is not possible to entertain suspicion in this connexion. Where, then, is the necessity of adhering to the letter of the oath so closely?

"In one word, our Emperor is a man of great merits and high virtue. He has commanded respect from all quarters and is *the* man of China. There is, therefore, no excuse to shirk his duty. Blessed of heaven and adored by the people, let not the Heavenly seat be long unoccupied; for the people cannot be long without a master. We humbly ask that thy modesty be suppressed and thy wise judgment be exercised. Adhere not to the mere formality of declining the throne, for such is not the will of Heaven. Issue immediately a decree to the country and ascend the righteous throne so as to satisfy the thirsty longings of the people within the seas and strengthen the great foundations of the never-ending Empire of Chung Hua. In this expectation we, the principal representatives of the people, dance in joy and hope with intense feeling. We hereby crave to return the Mandate and submit again the memorials of the principal representatives of the Convention of the Representatives of Citizens as well as that of the representatives of the provinces and special administrative areas. In submitting this memorial we prostrate ourselves and humbly ask that it will receive your august consideration."

The President Accepts

The reception of the second petition was more favourable and on the night of December 12 a Presidential Mandate was issued which, after quoting the petition, concluded:—

"The prosperity and decline of the country is a part of the responsibility of every individual, and my love for the country is certainly not less than that of others. But the task imposed on me by the designation of the millions of people is of extraordinary magnitude. It is therefore impossible for one without merit and without virtue like myself to shoulder the burdens of State involved in the enhancing of the welfare of the people, the strengthening of the standing of the country, the reformation of the administration and the advancement of civilisation. My former declaration was, therefore, the expression of a sincere heart and not a mere expression of modesty. My fear was such that I could not but utter the words which I have expressed. The people, however, have viewed with increasing impatience that declaration and their expectation of me is now more pressing than ever. Thus I find myself unable to offer further argument just as I am unable to escape from the position. The laying of a great foundation is, however, a thing of paramount importance and it must not be done in a hurry. I, therefore, order that the different Ministries and Bureaux take concerted action in making the necessary preparations in the affairs in which they are concerned; and when that is done, let the same be reported to me for promulgation. Meanwhile all our citizens should go on peacefully in their daily vocation with the view to obtain mutual benefit. Let not your doubts and suspicions hinder you in your work. All the officials should on their part be faithful at their posts and maintain to the best of their ability peace and order in their localities, so that the ambition of the Great President to work for the welfare of the people may thus be realised. Besides forwarding the memorial of the principal representatives of the Convention of the Representatives of Citizens and that of the provinces and special administrative areas to the Cheng Shih Tang and publishing the same by a mandate, I have the honour to notify the acting Li Fa Yuan as the principal representatives of the Convention of the Representatives of Citizens, to this effect."

A disturbance occurred at Shanghai on December 5 which has been represented as having been anti-monarchical in character. A body of about forty or fifty men proceeded in a launch flying what was mistaken for a naval flag, to the training ship Chao Ho, which was lying abreast the Kiangnan Arsenal. Most of the crew were on shore leave. The men from the launch boarded the Chao Ho, menaced the crew with bombs and revolvers, and compelled them to open fire on the arsenal. The loyalists, however, had at the first alarm thrown the keys of the big gun ammunition magazine overboard and consequently only the guns of small calibre were available. Firing continued for about an hour without the arsenal being damaged. Early the following morning fire was opened on the Chao Ho by other Chinese warships and after three or four shots had struck the vessel the "rebels" fled in a steam launch. Several were captured and documents were seized which showed that the attempt had been instigated by Sun Yat-sen and other outlaws in Japan. Only two members of the crew of the Chao Ho are suspected of complicity in the affair. Some gangs of rowdies made a half-hearted attack, which was easily repulsed, upon a Chinese Police Station near the Arsenal at the same time as the Chao Ho was seized. On December 6 another attack was made upon a police station on the boundary line between the Chinese district and the French Concession. This was also repulsed, twenty prisoners were taken and the remainder of the rowdies sought refuge in the French Concession, where many more were arrested.

The attitude that Japan would adopt in view of the fact that the restoration of the monarchical system had been practically accomplished was the subject of considerable speculation. The apprehension was felt in some quarters that the Japanese publicists who seek to win popularity by urging the adoption of a strong policy towards China would clamour for a vindication of Japan's offended dignity. It was obvious, however, that as Japan was only one of five Powers that had offered advice, she was debarred from taking independent action.

As the five Powers, France, Great Britain, Italy, Japan and Russia, had tendered advice it became necessary for them to make some formal response when they were informed that the country had declared unanimously in favour of monarchy and that the President had accepted the throne. Accordingly, on December 15, the Ministers of the Powers named proceeded to the Chinese Foreign Office in order to acquaint the Minister of Foreign Affairs with the view they took of the situation. No official report of what transpired on the occasion has been issued, but it is understood upon the best authority that Mr. Hioki, the Japanese Minister, speaking on behalf of his colleagues, stated that, in view of the statement made by the Chinese Government to the effect that the prosecution of the restoration of a monarchy would be delayed for the time being, and having regard to the declaration that they would take the responsibility to maintain peace and order, the Governments of the five Powers maintained an attitude of vigilance as regards the future development of the situation. Mr. Lu Cheng-hsiang in response said that with regard to the question of the form of government he had previously replied in detail to the Ministers present; now although the process of voting upon the form of government had been completed, yet, in view of the necessary preparations to be taken beforehand, the promulgation could not be made for the time being. He expressed the sincere hope that the Governments of the friendly Powers would, in accordance with their original principle and repeated declarations, respect the independence and sovereignty of China. The Ministers assured Mr. Lu that their Governments had not the slightest intention of encroaching upon the independence and sovereignty of China.

Revolt in Yunnan

As Christmas drew near a serious development took place in the Province of Yunnan owing to the appearance there of General Tsai-ao, who acted as Military Governor at Yunnanfu during the Revolution of 1911-12. In company with him were several other leading revolutionists, and their intrigues with military officers indicated to foreigners resident in the city that some untoward developments could be expected, especially as it was known that the revolutionists had passed into Yunnan through Indo-China on false passports. By December 20 it was certain that a revolution was being hatched, and on the 23rd at a meeting of military officers and revolutionists in Yunnanfu it was decided to send a telegraphic ultimatum to the Emperor-elect. The ultimatum was drafted and despatched to Peking, and copies of it were handed to the British and French Consuls at Yunnanfu. It was a lengthy document citing the oaths the President had taken to uphold and preserve the Republic, alleging that there was wide opposition to the Monarchy, and calling upon Yuan Shih-kai to repudiate the Monarchy and hand over those reponsible for the inauguration of the movement for execution. The document named a number of officials whose heads the revolutionists desired. The despatch demanded that the reply of Yuan Shih-kai, giving assurances that the Monarchy movement had been stopped, should reach Yunnanfu before 10 o'clock on Christmas Day, in order to prevent a rupture. The Emperor-elect did not reply, and on December 26 a Proclamation was issued over the signature of the Military Governor declaring that as Yuan Shih-kai had violated the Republican oaths and Constitution Yunnan would henceforth be independent of the Peking Government. The proclamation called upon the people to go about their business as usual and ordered officials to protect the lives and property of foreigners in the province. It also stated that the administration would be carried on as heretofore.

At this time of writing no news of bloodshed has reached Peking, nor is there any indication that any other provinces have joined with Yunnan, though telegrams were sent to all of them by the revolutionists of Yunnan, begging co-operation.

On the other hand the Central Government had received telegrams from the Governors of the various provinces reiterating their loyalty and stating that preparations had been taken to prevent any development of revolutionary aims.

Three divisions of loyal troops were promptly ordered to be prepared to march on Yunnan, but lack of communication will considerably delay a meeting with the forces who have declared for independence.

It has to be expected that certain of the troops of other provinces will be induced to join the revolutionists as time goes on, but as the revolutionists lack foreign sympathy (or at least sympathy of any but Japan) their endurance will be limited by their supplies of ammunition. As Yunnan is a remote and mountainous province, however, it will be some time before the Peking Government will be able to suppress the movement, even though they are able to confine it to the place of outbreak.

JAPAN, THE TREATY POWERS AND CHINA

Referring to Japanese diplomacy in China a British journalist is said to have once advised the Japanese "neither to apologise nor to explain, but to carry on their plans silently and tenaciously, for the reason that the outside world would be sure to suspect, criticize, or even to incriminate, whatever they may do, as a result of the important position which Japan has attained in the Far East." Whether such advice really emanated from a British journalist, or is a Japanese invention is not clear, but the Japanese have certainly adopted its spirit. Their recent policy in the Far East has been characterized by silence and tenacity. They have seldom, if ever, apologised or explained; neither do they seem to be perturbed about suspicions that have been aroused by their actions. Criticism from the outside world has fallen upon deaf ears.

Since the close of the Russo-Japanese War Japan has steadily sought to attain a position of paramountcy in China, but her purpose was not openly manifested until the outbreak of the European War gave her her great opportunity. From Japan's point of view everything favoured the immediate realization of her ambitions. The governmental machine in China was slowly being readjusted after the shock of the anti-Manchu Revolution. Everything in the country had to be reorganized; sufficient time had not elapsed for China to make adequate provision for national defence. Thus China was in no position to repel encroachments upon her sovereignty, and the European Powers were so thoroughly occupied with the life or death struggle in which they were engaged that they could render her no assistance. As to America, the Japanese believed that the Washington Government could easily be gulled. Misrepresentation and the cloaking of aggressive designs in plausible platitudes had stood them in good stead in the past. The "step by step" methods with which they had silently experimented in Korea had met with complete success, and they felt that similar success might be achieved in regard to China. That country was powerless to protect its interests; Europe was too preoccupied to interfere; America could be persuaded that aggression was altruism in disguise. Such were the circumstances in which Japan put forward her claim to be "master of Eastern Asia."

The situation must be examined with calmness and impartiality. Does the claim of Japan to the hegemony of the Far East accord with the Treaties to which she is a party? Let us consider the obligations implicated in these Treaties.

In the revised Anglo-Japanese Treaty of Alliance, signed on July 13, 1911, the necessity of preserving the independence and integrity of China was specially emphasized. Great Britain has larger interests in China than any other country, and British statesmen recognise that the preservation of those interests can best be attained by the preservation of the independence and integrity of China. Hence the provisions in the Treaty of Alliance affirming that principle and equal opportunity for the commerce and industry of all nations in China. But, notwithstanding this Treaty, after the fall of Kiaochou Japan presented twenty-one demands to China. "These demands," Baron Kato declared, "include no item which is incompatible with the principles of territorial integrity, equal opportunities and open door, which the Imperial Government have in the interests of China declared to the Powers from time and time." That this statement was directly contrary to fact is now undisputed. Furthermore, the existence of the fifth group of demands was withheld from the knowledge of the Powers, even of Great Britain. This was a flagrant violation of the agreement with Great Britain, which provides that "whenever, in the opinion of either Japan or Great Britain, any of the rights and interests referred to in the Preamble are in jeopardy, the two Governments will communicate with one another fully and frankly, etc." Realizing that this violation of her engagement to her Ally placed her in a very unfavourable light, Japan explained that the fifth group were desires and not demands. This equivocation proves that Japan herself realized that in making demands directly encroaching upon the rights of other nations, particularly of Great Britain, she was breaking her promises. On her own showing Japan "desired" to steal a march upon her Ally by violating a solemn engagement.

Japan entered into an agreement with the United States of America in 1908 to maintain the integrity and independence of China. The maintenance of the *status quo* in the Far East was declared in this agreement to be the common aim of the two countries. Although she entered into this agreement with America, and is ostensibly on friendly terms with that country, Japan has never lost an opportunity to misrepresent American policy. That moral principle is the basis of international relationship is affirmed by America, but this view has always been unwelcome to Japan and she has consistently endeavoured to discredit American diplomacy and impute unworthy motives. Even the action of America in returning to China a portion of the Boxer Indemnity for the purpose of educating Chinese youths in American Colleges was regarded as actuated solely by the selfish desire to further American trade in China. Just as Japan has misrepresented American policy and actions, so has she misrepresented her own policy and actions in regard to China. An illuminating instance of this misrepresentation is found in a statement sent by Count Okuma, the Premier of Japan, to an American paper on May 8, 1915. In that statement he described the Japanese demands as "concessions" and spoke of "motives to bring closer relations with China;" he charged the Chinese with being a people who "do not understand the Japanese sincerity and argument;" and, finally, he described the despatch of Japanese troops and the sending of the Ultimatum as "peaceful persuasion" and as evidence that Japan was "actuated only by an earnest desire to secure a peaceful settlement." The evident desire was to gull the American public into the belief that Japan was keeping her pledges, and to attain this end the Japanese Premier did not scruple to descend to dissimulation and misrepresentation.

With France and Russia Japan had also concluded engagements to preserve the integrity and independence of China, but, situated as these two countries are at present, they have no leisure to consider whether Japan is keeping her word. No protest having come from Great Britain or America it was hardly to be expected that one would be entered by France or Russia. The two facts that emerge from the foregoing considerations are that Japan promised to preserve the integrity and independence of China and that Japan is prepared to break her promises if such action is deemed to be beneficial to her. That Treaties possess sanctity is inconceivable to the Japanese mind. They consider that they are only to be respected if respect for them can be enforced. From the Japanese standpoint nations enter into Treaties to serve selfish ends, and not to guarantee the common interests of all the nations concerned. Also the Japanese claim the right to put their own interpretation upon the terms of the Treaties to which they are a party. The existence of such beliefs, which are a negation of all morality, is a menace to the peace of the whole world. Were they to find general acceptance, instead of being instruments for securing the peace and aiding the progress of the world, Treaties would become meaningless scraps of paper. Treaties are made to be preserved and not to be violated. All the Treaties between Japan and other countries relating to China, though differing in text, have two main objects in common, namely, to preserve the independence and integrity of China and to secure equal opportunity for the trade and commerce of all nations in China. It is impossible for Japan to misinterpret those objects. No misdirected ingenuity can read into the Treaties a right conferred upon Japan to establish an overlordship in China, or a right to gain exclusive privileges for the trade and commerce of Japan. Yet it is recorded in black and white, in official Japanese documents, that Japan has sought to establish her hegemony in China and has secured exclusive privileges for Japanese trade. Platitudes about Japan's noble national ideals, sincerity, and friendship for China cannot obscure the damning fact that she has violated her Treaty engagements. The European Powers, who are maintaining on the battlefield a enormous sacrifice the inviolability of Treaties, cannot disregard the fact that the principle for which they are fighting is being flouted in Asia.

JAPAN AND CHINA

Felicity of style and fulness of knowledge invest any pronouncement made by Mr. J. O. P. Bland upon matters affecting the Far East with attraction and importance. Respectful consideration should be given, even if agreement be withheld, to the views of a publicist who has studied on the spot the problems which centre in China, and who has had special opportunities of testing the accuracy of his conclusions by comparing them with those of equally well-informed Chinese and foreigners.

In the November number of *The Nineteenth Century* Mr. Bland discussed Japanese policy in China. Allusion was made at the outset to the well-established fact that the great majority of Europeans (and Americans) are in sympathy with the Chinese and more or less hostile to Japan. This Mr. Bland explains as "nothing more than an unconscious manifestation of the instinct of self-preservation." "The Chinese," he says, "when smitten on the left cheek, meekly turn the right to the smiter. The Japanese, if there be smiting to be done, prefer to adopt the active and not the passive part." According to Mr. Bland Europeans and Americans are hostile to Japan by instinct because she is a virile and aspiring nation intent upon gaining "a place in the sun" that can only be secured at their expense. It is not because China is morally and socially superior to Japan that the Western nations feel sympathy for her, but because, unlike Japan, she cherishes no ambitions which, if realized, would impair their interests. Thus Mr. Bland, who thereby expresses his opinion that a nation which does not harbour ambitions detrimental to the interests of its neighbours is not morally and socially superior to one that does.

That self-interest is the main motive that inspires nations and individuals may be accepted as a truism. But nations and men are not animated by self interest alone; otherwise there would have been no progress in civilization. Some of us, at all events, cling to the belief that love of justice and of honour on occasion compel the adoption of national policies, though selfish interests may thereby be jeopardised. Moral and material support given by Great Britain in the last century to Greece and to Italy cannot be explained by reciting the shibboleth "self-interest." The antipathy that is almost generally felt for Japan is not, with all respect to Mr. Bland, solely to be explained by the apprehension that her expansion will involve the contraction of other interests. The explanation is partially true, no doubt, but there is a deeper reason for what Mr. Bland describes as the "prevalent distrust and dislike of Japan."

These sentiments did not exist before the Russo-Japanese War, or if they did they were entertained by a negligible few. There were some who feared that Japan's complicity in the murder of the Queen of Korea in 1895 betrayed a readiness to use the most unscrupulous means to arrive at a desired end, but, generally speaking, the wonderful transformation of a country shackled by feudalism into an organized industrial state was watched with the sincerest sympathy and good will. At the beginning of the war with Russia both Great Britain and America showed their sympathy with Japan in a very practical manner. Ten years later sympathy and good will have disappeared and distrust and dislike prevail. Why?

If fear that the rise of other nations to greatness would affect their interests were the main motive governing national conduct, the efforts of the great nations would be consistently devoted to crushing possible rivals. Such has not been the case, because the lesson has been learnt by most nations that the welfare of their neighbours reacts beneficially upon their own welfare. To use a homely illustration, a shop-keeper is not alarmed if his customers increase in wealth and prestige. So far from the nations being afflicted by a craven fear of others being great they have lent every assistance to countries genuinely anxious to reform and progress. For decades past the Western nations have been trying to persuade China to enter the path of reform that would lead her to a higher summit of prestige and power than could ever be attained by Japan with her smaller population and infinitely inferior resources. The world hopes to see China become a strong and self-reliant nation, though China's rise might, if a short-sighted view be taken, be thought to be detrimental to foreign interests.

The rock upon which Japan's popularity split was Korea To establish the truth of this assertion it is necessary to join issue with Mr. Bland upon the question of the sanctity of treaties and other international undertakings, and the view that the majority of people take of their violation. Following the German Chancellor, Mr. Bland, with a cynicism remarkable in the subject of a nation that plunged into the greatest war in history to uphold the sanctity of treaties, says: "They (the Japanese) have also learned to wage with extreme skill the logomachy of diplomacy, more than rivalling Europe in the polite art of cloaking under euphemistic professions of pacificism the brutal realities of the nations' ceaseless struggle for survival and supremacy. *They follow the example of civilized nations in negotiating and recording treaties, but they are under no delusions as to the restraining virtue of these instruments.*" This statement, without one word of condemnation, shows that Mr. Bland has accepted the German view of the sanctity of treaties and engagements. Not only does he utter no protest against the policy of regarding treaties as "scraps of paper," but he commits himself in effect to support of the thesis that Might is Right.* Holding such views as these it is impossible for Mr. Bland to apprehend the real cause of the dislike and distrust for Japan that is felt by those who know her best. Japan, he states, not as an accusation but rather as a palliation, is violating treaties "simply because, for the moment, there is nothing to prevent her from so doing, and because she believes that the security and future prosperity of the people will be greatly advanced by her present action." Mr. Bland apparently considers that the end justifies the means and that only the stupid idealist, unversed in the ways of the world, supposes that, when nations enter into solemn engagements, they intend to keep them. If there be nothing to prevent a nation violating her promises she is justified in so doing, according to this creed. But nations are, after all, only aggregations of individuals and the same rules of conduct should apply. It would not be impertinent to suggest that Mr. Bland would probably abandon his attitude of detached tolerance if the front door of his residence were left open and unguarded, and a ticket-of-leave man, as there was "nothing to prevent him from so doing," helped himself to Mr. Bland's belongings, because he thought that his personal property would be "greatly advanced" by his action. Circumstances alter cases, but not principles.

The tide of Japan's popularity began to turn when she showed that she was untrustworthy. The cordial wishes on the part of the English-speaking people for her success in the war with Russia were in great part inspired by belief in her protestations that she was fighting for the cause of Korea and China as well as for her own. Though we may lack certain virtues ourselves we admire them in others, and Great Britain and America openly lauded what appeared to be a magnificent demonstration of altruism on the part of a young nation that was the Ally of the one, and, in a sense, the protegee of the other. The chorus of praise died away when it became evident that altruism had only been used for window dressing purposes, and that Japan had no other aim than to advance her own interests. Shortly after the Russo-Japanese War began (on February 23, 1904, to be precise) a treaty was concluded between Japan and Korea by virtue of which Japan guaranteed "the independence and territorial integrity of the Korean Empire." In November, 1905, Korea's "independence" ceased to exist, as control of her foreign policy was assumed by the Japanese Foreign Office at

* "The Japanese may exceed occidental nations in certain methods of slimness peculiar to the Oriental, but, on the other hand, they are free from the Anglo-Saxon mind-habit of hypocrisy. If from the outset they regarded the Portsmouth Treaty as means to an end, as a scrap of paper, doomed to futility almost before its ratification—let the nation which is without sin in this matter throw the first stone. Japan has violated, and is now violating, the terms of the Portsmouth Treaty and the Anglo-Japanese Alliance, because the present condition of affairs in Europe has provided her with an opportunity of securing and consolidating all the advantages for which she has worked and fought for the past thirty years. She is taking possession of China's outlying dependencies and endeavouring to establish the beginnings of overlordship in China proper, simply because, for the moment, there is nothing to prevent her from so doing, and because she believes that the security and future prosperity of her people will be greatly advanced by her present action."—P. 1204 *The Nineteenth Century.*

Tokyo. Korea's "territorial integrity" vanished five years later when Japan formally annexed the Empire. The passing of Korea did not excite much attention in Europe and America, but Occidentals in the Far East found in the march of events that led up to the annexation ample justification for distrust and dislike of Japan.

Japan announced to the world that she went to war with Russia because that country refused to evacuate Manchuria. The restoration of China's sovereignty was her avowed object. But no sooner was Russia ejected from South Manchuria than Japan set herself to develop and extend the rights and privileges that Russia had possessed. Instead of being better off China found her sovereignty diminished. She was forced to agree to give Japan the right to build the railway from Antung to Mukden after a provisional right had lapsed, and she was also compelled to grant Japan the right to veto railway construction in South Manchuria, which was exercised when Messrs. Pauling & Co. contracted to build the Hsinmintun-Fakumen railway for the Chinese Government.

The reason that Japan is distrusted and disliked is not because her rise to wealth and power is in itself a menace to other nations. America is wealthier and more powerful than Japan, but she is not distrusted and disliked by the rest of the world. It is when a nation *uses* her wealth and power in a manner that is detrimental to the general interest that she forfeits the trust and esteem of other nations. As soon as Japan thought she could safely demonstrate her belief (shared by Germany and Mr. Bland) that treaties have no "restraining virtue" she did so, with the immediate result that she was regarded with distrust and dislike. This feeling has been intensified by her action, which Mr. Bland seems to admire, in taking advantage of the European War to violate openly the treaties which she had hitherto transgressed by subterfuge and evasion. In undisguised breach of her engagements to maintain the Open Door, she has closed it in South Manchuria and elsewhere to all comers. Japan is distrusted because she has shown herself to be untrustworthy; she is disliked because the qualities she displays are not likeable.

The good will and sympathy felt by Occidentals for China are not to be explained by the belief that the Chinese belong to the passive, non-resisting type of humanity. They are due to the conviction that, if China rises to wealth and power, the principles of morality that inspire the Chinese people will prevent that wealth and power being used to the detriment of the world. The ideals of feudalism that still inspire the Germanic and the Japanese peoples were long ago overtaken and left behind by the Chinese. When China achieves the position in the scheme of things that her well-wishers desire her to gain she will not be so feudal-minded as to "set forth upon her predestined path of Imperial destiny." The sight of the painful progress of Germany along that bloodstained path and the pitfall awaiting at the end are not necessary to remind the Chinese that national happiness is not to be found in conquest and territorial aggrandizement. Realization of the truth will prevent a powerful China from becoming a menace to the world, and would arrest Japan on the path of militarism upon which she has entered, beckoned by the same fantastic illusions that are betraying Germany to her unhonoured fate.

Japanese policy in China is identical with German world-policy. It is a policy of stark aggrandizement, an endeavour to reduce a peaceful and lovable race to a condition of helotism. What Germany aspires to be in Europe, Japan aspires to be in Asia. Both countries have heaped taxes and debt upon their civilian community to create a military machine out of all proportion to the requirements of defence. Both countries find military adventure and appeal to national chauvinism necessary to reconcile the people to the intolerable weight of their armour. Both countries seek to relieve their own people of some of the weight by conquest of the lands and infringement of the liberties of neighbouring races. Is it necessary to seek further for an explanation of what Mr. Bland terms the "prevalent distrust and dislike of Japan among Europeans?"

INTERVENTION AND THE MAINTENANCE OF CHINA'S INDEPENDENCE

The independence of China is guaranteed by four treaties. The signatory Powers are France, Great Britain, Japan and Russia. It is of interest to note that Japan is a party to each of the treaties, and that, therefore, she has bound herself four times over to respect the independence of China.

In chronological order the treaties guaranteeing China's independence are.—(1) The Franco-Japanese Agreement of June, 1907 (2) the Russo-Japanese Convention of July, 1907; (3) the Root-Takahira Agreement of November, 1908; and (4) the Anglo-Japanese Treaty of Alliance of July, 1911. The wording of the portion of these instruments relating to the preservation of the independence of China is almost identical, as will be seen from the following extracts:—

"Les Gouvernments de la France et du Japon, d'accord pour respecter l'independance et l'integrite de la Chine . . . . . . s'engagent a s'appuyer mutuellement pour assurer la paix et la securitie dans ces regions, en vue au maintien de la situation respective et des droits territoriaux des deux Parties contractante sur le continent Asiatique."—*Franco-Japanese Agreement.*

"The two High Contracting Parties agree to recognise the independence and the territorial integrity of the Chinese Empire, and the principle of equal opportunity for the commerce and industry of all nations in the said Empire, and they engage to uphold and defend the maintenance of the *status quo* and the respect of that principle by all the peaceful means possible to them."—*Russo-Japanese Convention.*

"They (America and Japan) are also determined to preserve the common interests of the Powers in China by supporting by all pacific means at their disposal the independence and integrity of China, and the principle of equal opportunity for the commerce and industry of all nations in that Empire."—*Root-Takahira Agreement.*

"The preservation of the common interests of all Powers in China by ensuring the independence and integrity of the Chinese Empire and the principle of equal opportunity for the commerce and industry of all nations in China."—*Object B, Anglo-Japanese Treaty of Alliance.*

There is a strong family likeness to be discerned in these engagements. The importance, in the interests of the Powers themselves, of maintaining the independence of China is fully recognised. The maintenance of China's independence is made, in fact, the corner-stone of Far Eastern policy.

On October 28, Japan, Great Britain and Russia advised China to postpone the restoration of the monarchical system of government and a little later France and Italy associated themselves with this advice. The Government of the United States of America declined to participate in the offer of advice on the ground that it wished to avoid the appearance of seeking to interfere with China's domestic concerns. This is considered by most Chinese to be the diplomatic way of announcing that America considers that the action taken is an interference with China's domestic concerns; is consequently a negation of China's independence, and therefore is a violation of treaty engagements. That the great majority of thoughtful Chinese regard the action of the Powers in a similar manner is beyond dispute.

To ascertain how far the belief that the Powers have violated their pledges is justified it is necessary to consider the precise meaning of the word "independence," and also to what extent the pledges given are binding. An independent state is one that exercises sovereign powers in its own territories and over its own people. It is responsible to itself alone for its acts as far as they relate to its own concerns. Although the sovereign rights of China have been impaired by her compulsory tolerance of foreign concessions and Settlements, where extra-territorial rights are exercised, and by loss of control of her Customs, she still ranks as an independent state. Turkey at the time of the deposition of Abdul Hamid was in a similar position, but it is to be remarked that no "advice" was proferred to her

when the Young Turk Party proposed to inaugurate a constitutional regime. Even in Mexico, where civil war prevailed for years in consequence of the difficulty of establishing a stable government, the greatest reluctance to intervene in any manner has been displayed. It would seem evident, therefore, that it is difficult to refute the contention that the offer of advice, even if no steps were taken to ensure its acceptance, is incompatible with the preservation of the independence of the state to which the advice was offered. A point that must not be overlooked is the state of tranquillity that prevailed in China when the advice was given. From a Chinese point of view it seems remarkable that, whereas the Powers refrained from interference in Mexico though foreigners were being killed and foreign property destroyed, they should interfere in China when there was no symptom of disorder discernible.

Are the treaties we have quoted binding? The ingenious suggestion has been made that as China is not a party to any of them those by whom they were signed are at liberty to violate them by mutual agreement. It is true that two Powers have a right by mutual consent to denounce or vary any agreement which they have made with each other. But, even in the case of a treaty which did not directly concern a third nation, there is a moral duty to the rest of the world to give ample notice that such a treaty is to be denounced or varied. International agreements of a public nature are, in a sense, a portion of international law, and the right of the world to be notified of their variation or denunciation is generally recognised. If France, Great Britain, Japan and Russia had mutually agreed to abandon the policy of preserving China's independence, they would certainly have made some formal notification of their decision. There is not the slightest foundation for the belief that any mutual agreement of this nature has been made. Even if there had been it is obvious that Japan, who took a leading part in the presentation of the advice, is still bound by the Root-Takahira Agreement.

The view must be adopted that the Powers do not consider that the presentation of advice was in disregard of their pledge to maintain the independence of China. An announcement made in the British House of Commons, moreover, showed that the British Government, at all events, considered that its duty began and ended with the presentation of advice, and that it was entirely China's concern whether the advice were followed. This announcement has had a reassuring effect and the arrangements for the restoration of the monarchy have been proceeded with without either undue haste or delay. Still, even if there be no further developments in regard to the advice, it is obvious that a clear definition of international Far Eastern policy is urgently necessary if China is to be enabled to push on with the program of reform and development that has been decided upon. The restoration of the monarchical system is believed by the Chinese best qualified to form an opinion to be the necessary prelude to a vigorous policy of development, but clearly it will be impossible to carry it out unless China is relieved from the apprehension that her domestic policy, in spite of the general recognition of her independence, is subject to interference by other Powers.

REFORMATION OF THE LIKIN SYSTEM

Attention has been directed in these columns on many occasions to the imperative necessity of encouraging the foreign and domestic trade of China by every possible means. We have also pointed out that such encouragement might take two forms —the granting of bounties and special privileges, and the removal of restrictions. The latter is the more important. Trade has too long been regarded in China as an orange to be squeezed for the benefit of officialdom. The harder it was squeezed, officialdom thought, the more juice would be obtained. Discarding the metaphor, the failure of the authorities to see that discouragement of trade leads to decreased revenue, has resulted in the imposition of *likin* charges of a most oppressive nature.

In a recent mandate issued by the President the welcome intimation was made that serious attention is being given to the *likin* evil. The admission is made that taxation of this kind is economically unsound, and it is recalled that a promise was given that the *likin* system should be abolished as soon as the customs tariff was rectified. China, as we have remarked in previous references to this subject, was unable to carry out this promise, as the Treaty Powers have not agreed to the rectification of the Customs tariff. Although the Chinese authorities recognise that the levying of *likin* is a discouragement of trade, the revenue thus obtained forms such a large proportion of the national income that its surrender without an equivalent being provided would throw the finances of the country into utter disorder. Consequently, while it is admitted that the system is pernicious, it cannot be abandoned. But, bad as the system is in itself, the methods adopted in levying and collecting the taxes have increased its power for evil. As the mandate explains "branches of *likin* offices have been established in every corner of the provinces, like spiders' webs, levying taxes from place to place." The officials in charge of these stations are stated to have neglected their duties, and to have extorted money from the public in contravention of the fixed regulations.

To remedy this condition of affairs the President has appointed two officials to proceed to the various provinces and to institute an investigation of the *likin* system. They are empowered to close up unnecessary stations, and are ordered to prosecute with the utmost rigour any officials whose conduct has been irregular. If the investigating officials carry out their duties properly there should be a marked development of inter-provincial trade. The full benefit of railways and other services of communication cannot be enjoyed as long as goods and produce are saddled with preposterous transit charges which vary according to the whim of the collecting officers. Probably nothing has retarded the development of China's trade and communications to a greater extent than the levying of *likin* dues, and, conversely, nothing could give greater stimulus to trade than their removal. As that is not possible in the present condition of the national finances, the President has done the next best thing by reiterating his instructions that the taxes must be collected in strict accordance with the regulations and that unnecessary stations must be abolished. It may be taken as a hopeful sign that one of the first steps taken by the President after his acceptance of the crown was to initiate a reform of such grave importance. The new regime will abundantly justify itself if it vigorously prosecutes reform, abolishing evils and abuses, or if their abolition for some good reason be impossible, restricting as far as possible their power for evil.

INDUSTRIES OF SHANTUNG

The chief places for the manufacture of lace, handkerchiefs, etc., are Loti and Dzongchiachuang, each 25 miles southwest of Chefoo, but at different angles. All the work is done in the homes or in very small workrooms, and the thread and foundation cloth are purchased in Chefoo, where the finished product is largely marketed. It is in this district that the Chefoo Industrial Mission has established workrooms in connection with schools, the output of which is handled by a British house at Chefoo, which firm also places orders for specific patterns to be filled by these schools and retailed at an advance of from 100 per cent to 400 per cent above cost. The Chefoo Silk Store, Chinese, also places orders in this district.

The principal centers for the manufacture of pongee silk cloth are Tangchiapoa and Taotsun, 55 and 35 miles, respectively, southwest of Chefoo, Taotsun being on the direct road from Chefoo to Laiyang and Tangchiapoa on the road to Laiyang via Chi Hsiahsien. These factories use only Shantung cocoons, Tangchiapoa using the oak and Taotsun the much superior and rare mulberry cocoon, which is grown in the immediate vicinity. The work is all done by the aid of homemade reels and looms, and the mulberry cocoon can be reeled about five times faster than the oak. The Chinese manager of the Hwatai filature in Chefoo (where only thread is made) estimated the cost of 100 pounds of silk at about $350 Mexican, and said that they sold it for about $450, thus making a profit of about $1 (50 cents gold) per pound; the cost and selling price varying from year to year, but the ratio remaining about the same.

EDUCATION IN THE PHILIPPINES

[From the Fifteenth Annual Report of the Director of Education]

In practically every line of Educational work in the Philippines substantial progress is to be reported. The attendance during the school year 1913-14 and during the present school year 1914-15 has reached the highest figure in the history of this bureau. The annual enrollment for 1913-14 was 621,030 as compared with 440,050 for the previous school year. The average monthly enrollment for 1913-14 was 489,070 as compared with 329,756 for the previous school year. The average daily attendance was 428,552 as compared with 287,995 for 1912-13. The percentage of attendance was 88. The high percentage of attendance is particularly significant, since regularity of attendance is one of the chief factors of efficiency in instruction. The number of schools for the school year 1913-14 was 4,235 as compared with 2,934 for 1912-13. The number of schools for the present school year remains practically the same. The number of teachers for 1913-14 was 9,462 as compared with 7,671 for 1912-13.

The progress in academic work has been generally satisfactory. Examinations at the close of the school year 1913-14 were rather more difficult than usual in certain subjects, so that the number passing did not show a very great increase over that of the previous school year. The English requirements were made much more stringent, which explains many failures.

The progress in athletics has been remarkable. Reports from every division in the Islands indicate that fully 95 per cent of the boys and girls in the public schools are taking part in athletics or physical training in one form or another. The influence of the public schools in promoting physical development and health extends far beyond the schoolroom. Thousands of people who have never attended the public scbools are participating in games through the direct influence of the Bureau's athletic program.

The construction of buildings has been held back on account of the necessity of effecting every possible economy. This Office had hoped to begin work on the new building for the Philippine School of Arts and Trades, but it was found impossible to do so. Many municipal projects are likewise held up. From January 1, 1914, to December 31, 1914, 60 standard-plan buildings were completed, containing a total of 327 rooms. Five reconstruction projects were finished during the same period. Altogether 748 permanent buildings of all classes have been completed, representing a total of 3,950 rooms. During the year 268 standard school sites have been secured, of which 172 contain between five and ten thousand square meters and 96 ten thousand square meters or more. This brings the total number of standard school sites secured by the Bureau of Education up to 1,338, of which 919 have an area of between five and ten thousand square meters and 419 ten thousand square meters or more.

Progress Since the American Occupation

Until the middle of the last century there was no general system of Education in the Philippines. In 1863 a system of public primary schools was planned. Under this decree and subsequent legislation the number of public primary schools reached 2,167 in 1897. Between 1863 and 1893 the normal school enrolled 2,001 students.

Manila was occupied by the American forces August 13, 1898. Even before that a school had been opened on the Island of Corregidor, which had fallen into the hands of the Americans in May of the same year. Less than three weeks after occupation of Manila seven schools were reopened and a teacher of English was installed in each under the supervision of Father W. D. McKinnon, chaplain of the First California Regiment. On June 1, 1899, Lieut. George P. Anderson was detailed as city superintendent of schools for Manila and during the following year an average of 4,500 pupils were enrolled in the public primary schools. During this year Capt. Albert Todd was detailed as superintendent of schools for the Philippine Islands On May 5, 1900, Captain Todd turned over his work to Mr. Fred A. Atkinson, who had been chosen by the Commission as General Superintendent of Public Instruction.

Doctor Atkinson devoted the first year largely to studying the educational situation in the Philippines, formulating plans, and securing teachers and superintendents from the United States. By the end of 1901 there were in the Philippines 765 American teachers, almost without exception new to edcational work under anything like Philippine conditions.

The first few years after the arrival of a large teaching force were attended with many discouraging features. A large proportion of the teachers were without experience. Many of them became disappointed, and many Filipinos were dissatisfied with the progress made. In 1902 a widespread cholera epidemic carried away tens of thousands of people, and during this period school work was suspended in many places and was disorganized generally.

On January 1, 1903, Dr. Elmer B. Bryan succeeded Doctor Atkinson as General Superintendent. He did much to bring order out of existing conditions, but on account of illness he resigned and returned to the United States after six months. In August, 1903, Doctor Bryan was succeeded by Dr. David P. Barrows.

Doctor Barrows developed the plan of work according to changing conditions, making the American teacher in the primary schools a supervisor as the Filipino teacher became better qualified for classroom work. During his administration the school enrollment rose from 227,600 to 451,938. Upon his resignation, November, 1909, Doctor Barrows was succeeded by Mr. Frank R. White.

During Mr. White's administration industrial instruction was thoroughly organized and largely standardized, the business methods of the Bureau thoroughly overhauled and perfected, the teaching force brought up to a higher grade of efficiency, and a program of permanent construction of school buildings entered upon and carried out with great success. Mr. White did not live to see this extension of the influence of the Bureau. He died in Manila, August 19, 1913.

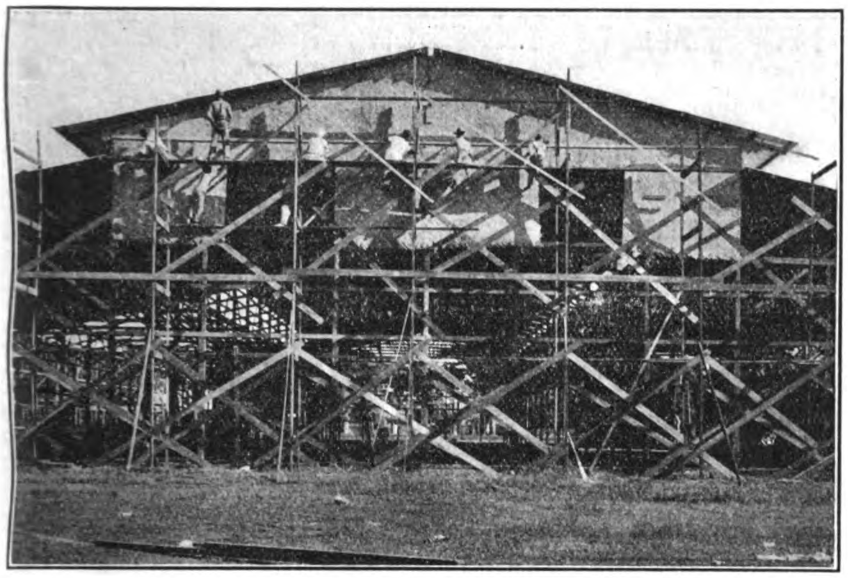
Changes in the Directorate

After the death of Mr. White, Mr. Frank Linden Crone was appointed Director of Education; Mr. Charles Henry Magee, Assistant Director; and Mr. John David De Huff, Second Assistant Director. Mr. De Huff returned to the United States on leave in November, 1913, and presented his resignation in March, 1914. He was succeeded by Mr. Walter William Marquardt, who was appointed Second Assistant Director of Education July 23, 1914.

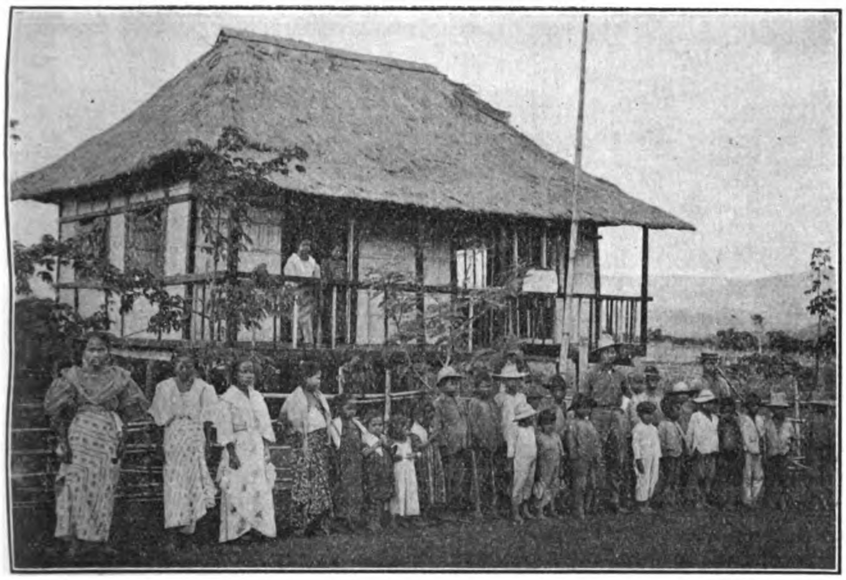
The public schools have contributed greatly to the intellectual awakening which has taken place and is taking place throughout the Philippines. This intellectual awakening is of a magnitude which scarcely finds a parallel in history. A great public school system has been established with an enrollment of more than 600,000. A teaching force has been developed consisting of more than 9,000 teachers, 5,104 of whom have completed one of the intermediate courses and 341 of whom are graduates of a secondary course. Practically all of these teachers have received their education since the establishment of the Bureau of Education.

Aims and Purposes of the Bureau of Education

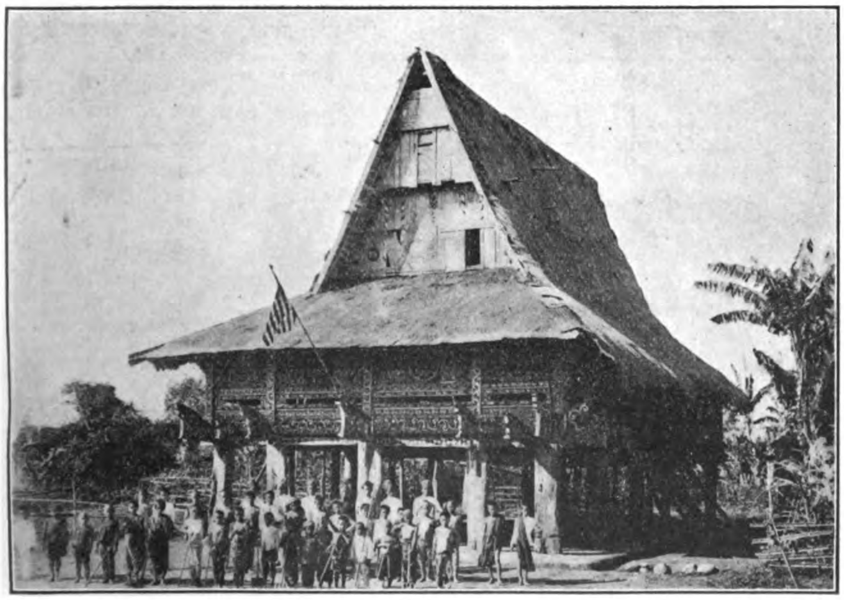
Briefly stated, the problem which the Government must face is: First, to give the great mass of the population a primary



STUDENTS OF THE PHILIPPINE SCHOOL OF ARTS AND TRADES AT WORK ON THE EDUCATION BUILDING FOR THE SECOND PHILIPPINE EXPOSITION, 1914



DALIRIG SETTLEMENT FARM SCHOOL, BUKIDNON PROVINCE, MINDANAO



MORO SCHOOLHOUSE AT DANSALAN, BUKIDNON PROVINCE, MINDANAO

education; second, to give an intermediate education to those who will constitute the substantial middle class of the country; and, third, to provide secondary and higher instruction for those who are to assume leadership in thought and action.

It is the aim to give the great mass of the population elementary instruction in reading and writing; in sufficient arithmetic for the simple business transactions which they will have to carry on; in home and world geography; in the simple rules of sanitation which, if practised, will keep the death rate to the lowest possible figure and improve the general efficiency of the people; in good manners and right conduct to insure rectitude and courtesy in the great mass of the population; in physical training to develop the people to a point where they can bear effectively the increasing burden which civilization lays upon mankind; in notions of the rights and duties of citizens; and in a certain amount of industrial work to promote industry and teach respect for labor.

In addition to the general course, which is largely academic in nature, though it provides a considerable amount of instruction in gardening, domestic science, and the minor industries, five special courses are offered; viz, the course in farming, the course in teaching, the course in housekeeping and household arts, the course for business, and the trade course.

One of the present purposes of the Bureau is the introduction of these specialized courses into a larger number of the intermediate schools. Agricultural or farm schools are urgently needed. In every province at least one such school should be found, and in the larger provinces, two or three. Equipment should be purchased and capable teachers employed to put not less than one special course in every one of the nearly 300 intermediate schools now in existence.

It is the aim of the Bureau of Education to bring 800,000 pupils into the public schools at the earliest possible date. Applying the percentage generally used in the United States to the population of the Philippines, the total number of children of school age may be estimated at 1,200,000. It is very doubtful, however, whether United States figures apply in this case. It is certain that a considerable percentage of boys and girls will not under present conditions, pursue their studies beyond the age of 10 or 11. The total annual enrollment for the school year 1913-14 was 621,000; for the present school year it will approximate 630,000. As facilities become available, however, it is believed that 200,000 more children will enter school without the use of compulsion and without placing schools in villages where the attendance would fall much under 40.

The current appropriation of the Bureau of Education made available for educational work in all provinces, including the non-Christian provinces—Mountain, Nueva Vizcaya, Agusan, and Bukidnon—the sum of P4,078,033.50. Formerly separate appropriations provided for these non-Christian provinces.

This sum was augmented by supplementary appropriations making a total for expenditure for education under the direction of the Director of Education of P4,164,344.35.

The total municipal school income from Municipal sources during the year 1914 amounted to approximately P2,234,142.66. During the same period expenditures from these funds totaled P2,440,337.55 (both figures exclusive of Insular aid).

Voluntary contributions for school purposes are frequently made. These contributions take the form of money for special school purposes, for the payment of salaries and for construction of school buildings; of materials of various sorts for the construction of school buildings and of land for school sites.

Pupils' funds have also played an important part in financing the minor activities of the public schools such as athletics, school libraries, literary societies, debating clubs, domestic-science classes, school lunches, industrial work, and entertainments. These funds are built up by receipts from entertainments, profits on industrial articles (after paying for materials and school labor), contributions, and clubs.

Insular Schools

PHILIPPINE NORMAL SCHOOL

The establishment of the Philippine Normal School was authorized by Act No. 74 passed by the Philippine Commission

on January 21, 1901, and the school was formally opened on April 10, 1901. In 1908, the number of students enrolled in the teaching course was only 60. In 1909 there were 102 enrolled in the course in teaching.

At the beginning of 1910 it was thought advisable to thoroughly reorganize the school. All courses previously given, with the exception of the teaching course, were eliminated, and the course for teachers was revised throughout; the industrial department was organized; greater emphasis was placed upon school and home gardening; the domestic-science department was greatly enlarged and extended; and an additional impetus was given to physical training and athletics.

Each student of the Normal School must take two years of work selected from the industrial courses upon the advice of the industrial supervisor. The course in school and home gardening is required of all young men in the second year and is open to scholarship students (pensionados) upon the recommendation of the division superintendents.

The course in domestic science, which is designed for the preparation of young women for teaching housekeeping and household arts in the public schools, extends over a period of two years and embraces sewing, cooking, home sanitation, ethics, and the principles and practice of general housekeeping. There is so great a demand for admission to this course that it is impossible to accommodate all the applicants.

The Normal School is now sending forth about 100 graduates each year, one-third of whom are from the domestic-science course and the other two-thirds from the regular normal course. These graduates are admitted to the civil service without examination. They are distributed throughout the Islands and are among the leaders in the teaching service.

The Philippine School of Arts and Trades

The Philippine School of Arts and Trades was provided for in the organic Act establishing civil government in the Philippines in July, 1901.

When the school was opened, three courses were given: Woodwork, ironwork, and telegraphy. In 1906 the course in telegraphy was transferred to the Philippine School of Commerce, but other courses were added until at the beginning of the school year in 1914-15 instruction was being given in carpentry, building, machine-shop practice, blacksmithing, wheelwrighting, stationary engineering, automobile operation and repair, ceramics, drafting, preparatory engineering, and normal industrial work.

The attendance has increased from an enrollment of 90 pupils in 1901 to 762 at the opening of school in 1914, when over 100 applicants were refused admission because of lack of room and proper facilities for instruction.

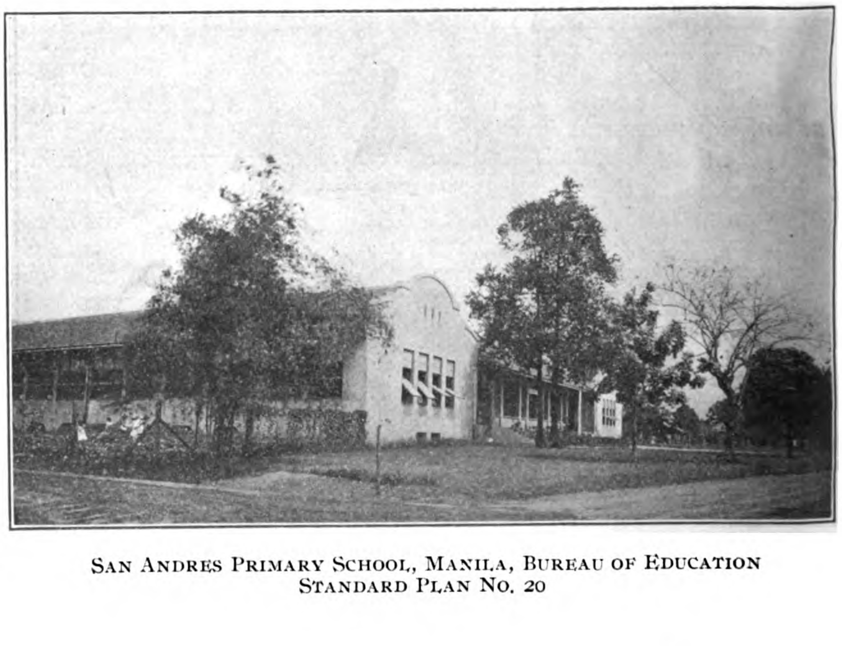
The school is designed primarily to train young men who plan to follow a trade for a livelihood; and the courses, both in academic and in shop work, have been as practical as possible, all academic work being as closely correlated with shop work as conditions warrant.

The one unusual feature of the shop work is the large number of commercial orders handled. After the first year's work in each shop commercial work is undertaken. During the calendar year 1914 the total value of finished work orders in the school was P47,000. Some of this money is used in paying pupils for overtime work, and enables a number of students to pay a part of their living expenses.

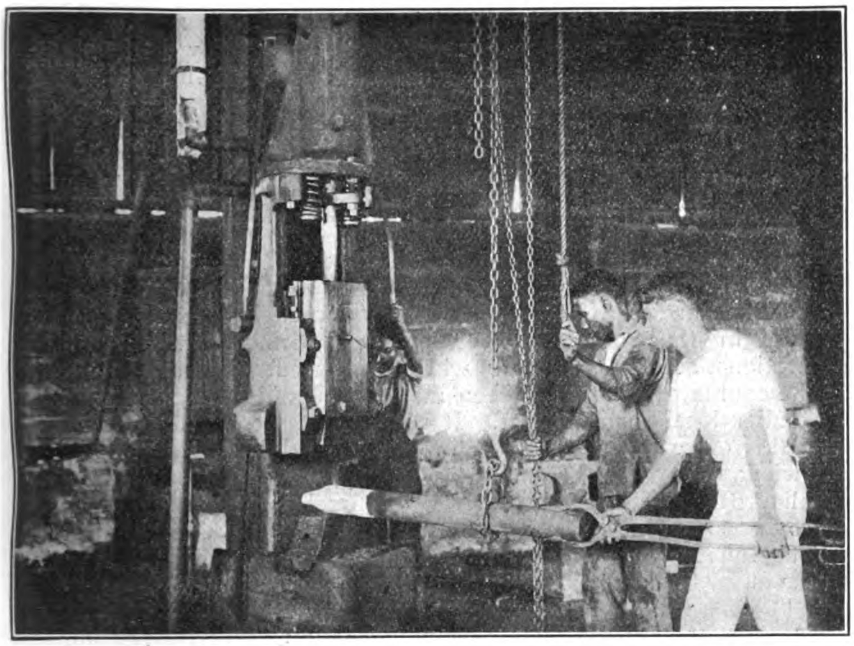
Including the first graduating class of 1906, 263 students have been graduated. So far as can be learned, 80 per cent of these graduates are employed, while others are continuing their studies in higher schools. The positions held by graduates are varied, including among others, traveling machinery salesmen, mechanics, machinists, engineers, electricians, teachers, draftsmen, cabinetmakers, and building foremen. One graduate has been elected president of his home town—Guagua, Pampanga. The salaries received range from P150 to P40 per month, with an average of P61.50. When compared with the salary of the average Filipino father, which may fairly be estimated at P25, the real value of vocational education to the Filipino people is evident.

Kabangan Barrio School, Camalig, Albay, a Mixed-Material Temporary Building

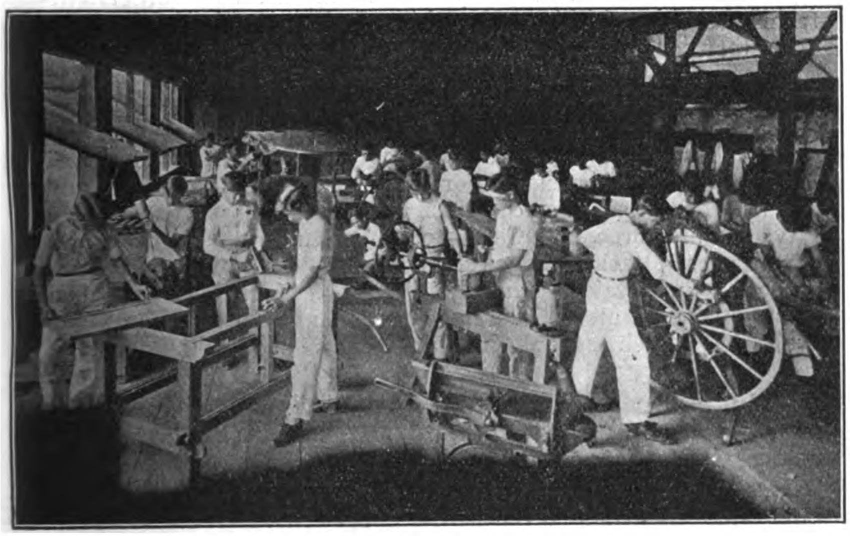
A Class in Basketry, Philippine Normal School, Manila



San Andres Primary School, Manila, Bureau of Education Standard Plan No. 20



WORKING A STEAM HAMMER, PHILIPPINE SCHOOL OF ARTS AND TRADES, MANILA



STUDENTS AT WORK IN THE WHEELWRIGHT SHOP, PHILIPPINE SCHOOL OF ARTS AND TRADES, MANILA

STUDENTS CLEARING NEW LAND, LAGANGILANG INDUSTRIAL SCHOOL, ABRA, ILOCOS SUR

The Philippine School of Commerce

During the school year 1914-15 through December, the number of students enrolled in all courses was 411, an increase of 12 over the previous year. Thirty-nine girls were enrolled, an increase of 50 per cent over any previous year. Students were enrolled from 33 provinces. Manila was represented by 98 students, while Union, a distant province, was represented by 46 students.

The following courses of study were offered during the year: A four-year course in commerce; a two-year bookkeeping course; a three-year stenography course; a two-year stenography course; a one-year course in stenography for high-school graduates. Of the 411 students enrolled, 253 selected a stenography course and 158 a course in bookkeeping. No certificates of graduation are issued to students until they have had from three to six months of successful experience in a business house or a Government office.

During the past year the Central Luzon Agricultural School has made very satisfactory progress. The first three years' work covers the course in farming for intermediate grades. Beyond the intermediate grades, special courses are given in training for farm assistants, for agricultural and garden teachers, and for steam engineers, emphasis being placed on the physical problems connected with each vocation. These courses are, of necessity, as regards the scientific basis of the vocational training given.

The farm work covers a period of at least four years, and the facilities provided for this work are excellent. Owing to the backward state of the agricultural methods in vogue throughout the Philippines, it is doubtful if the introduction of a more modern equipment would be productive of as good results as the present equipment. An effort has been made to lead in agricultural progress, but not to go so fast as to unfit the student for conditions which he will have to face when he leaves school. Considerable attention is given to hog raising. The herd of swine is kept at about 100 and furnishes most of the fresh meat consumed by the students. This school forms an integral part of the Munoz communal irrigation system. About 2 kilometers of the water course passes through the reservation. An area of several hectares is devoted to garden crops. A student gardener is required to cultivate an area of 400 square meters planted to vegetables. His products are consumed in the student mess. In conjunction with the Bureau of Forestry, a forest nursery is maintained where seedlings and cuttings of valuable forest trees are propagated. In addition to the large amount of construction work in connection with regular farm work, a great deal of special training is obtained in a number of activities closely allied to farm work, such as carpentry, blacksmithing, running machinery, and plumbing. A large shop and machinery building was constructed by the students.

The School of Household Industries was established for the purpose of training women in the art of making lace, embroidery, and other kinds of needlework, so that upon return to their homes they might organize and establish working centers with the idea of systematizing the work and placing it on a commercial basis. The total enrollment for the calendar year ending December 31, 1914, was 179. Of that number 126 have graduated. The others will graduate when they have completed eight months' work. The total sales for the same year were P4,474.02. This sum includes private sales to the amount of P2,263.46 and sales to the Bureau of Education for the Panama-Pacific International Exposition to the amount of P2,210.56.

School Work Among the Non-Christians

To understand the importance of education among the non-Christian peoples in the Philippines, it is only necessary to state that they constitute approximately 8 per cent of the total population of the Philippines, and that at present about 50 per cent of the Islands' area is either inhabited by them, or, if uninhabited, adjoins their lands and is in some degree under their influence. The territory which they occupy includes an immense region in northern Luzon and parts of southern Luzon: the whole interior and a considerable part of the coast regions of Mindanao; portions of Negros and Panay; the islands of the Sulu Archipelago;

Balabac and Basilan; all but the coast line of Mindoro; and practically all of the large Island of Palawan.

During the school year 1913-14, 50 schools were conducted for non-Christians in the Christian provinces and 89 in Nueva Vizcaya, Bukidnon, Agusan, and the Mountain Province, the average daily attendance in the former schools being 1,640 and in the latter 3,506. Under the provisions of Act No. 2406 special Insular aid was given to the Mountain Province for the extension of public-school instruction, and 24 additional schools were opened.

In every phase of school work, the Mountain Province has progressed. In athletics there is great enthusiasm among the pupils and their parents as well. Industrial work shows very satisfactory progress. A fine stone school building at Kiangan was built of stone cut by the schoolboys. These same boys have given much assistance in the construction of the subprovincial building at Kiangan.

Special attention has been given to the education of girls with a view to making their services so valuable in and about the home that they will not remain simply carriers of burdens and workers in the camote fields. Therefore all of the non-Christian girls have been taught to do loom weaving and a number of them have begun weaving in their homes cloth which finds a ready sale among their own people. The object of the Bureau of Education is being accomplished, for these girls have been relieved from work which should not be imposed upon them, if the race is to attain its highest development.

Aborlan Agricultural School is located in the Province of Palawan on the Aborlan River, some 30 miles south of Puerto Princesa. The people of the surrounding country are Tagbanuas, a primitive pagan tribe, gentle and inoffensive. They are essentially nomadic, making new clearings from year to year, and abandoning their rough shelters at the slightest pretext. Adjoining the school reservation, a large tract has been set aside for their exclusive use. The school farm has an area of 199 hectares, all of which was originally virgin forest. At the present time there are 70 hectares under cultivation. The soil is especially well adapted for the growing of cocoa-nuts and about 6,000 trees have been planted. As fast as the land can be cleared, more trees will be put out with the aim of making the school ultimately self-supporting. Rice is grown in quantities nearly sufficient for the requirements of the 100 pupils. Pupils of this school took all the prizes in the division corn contest for 1913-14. The quality of the pigs and poultry raised by the people of the reservation is being improved by the introduction of new breeds from the school farm. Papayas grow in such quantities that they are the standard ration for pigs.

Medical work of a very elementary character is being carried on. Cleanliness is the first lesson that has to be taught, and the bath has its place on the regular school program.

As " capitan " of the reservation, the principal of the school directs the older people, who are steadily coming in from the hills, to live as civilized human beings. Their houses are built on prescribed standard plans, their clearings are laid out for them, their petty difficulties with each other and with their surrounding Christian neighbors are settled, they are told what, when, and how to plant, and little by little, they are coming to realize the responsibilities of life.

Due to the influence of their Moro neighbors on the south, Mohammedanism is spreading among them. A church is planned, and a cemetery has already been laid out, facing Mecca. Those who are still pagan have their own places of worship and burial.

Villar Settlement Farm School was the first for Negritos to achieve an unqualified success, and is supported from the appropriation of the Bureau of Education and from special provincial non-Christian funds. The average attendance during the school year 1913-14 was 46 and for the month of October, 1914, was 33. Upland and lowland rice, corn, vegetables, and other agricultural products are grown.

Schools for non-Christians are also maintained at Paor-Patoc and Garnaden, Ilocos Norte; Badyangan, Batan, and Igcoccoc, Antique; Budburan, Calomintao, Dulangan, and Lalauigan, Mindoro; Artacho, Pangasinan; and Bueno and Tayaong, Tarlac. In these and the schools previously mentioned the Bureau of Education is giving the following peoples instruction in better living: Moros, Tagbanuas, Negritos, Ifugaos, Kalingas, Apoyaos, Benguet Igorots, Ilongots, Dumagats, Manobos, Bagobos, Mandayanas, Mangyans. Each school for each people has its peculiar problems which must be met and solved, each in its own way.

The Policy of the Schools and its Effect

The Bureau of Education has attempted in every way to assist in the solution of the economic and governmental questions as well as those which are peculiarly educational. The course of study has been made so flexible as to meet the peculiar local requirements. It has been the constant attempt of this office to make the policy of the schools in the non-Christian provinces coincide as closely as possible with the policy of those responsible for the general government of these provinces. The schools have operated to reduce tribal antagonisms, and in this way have been of assistance to provincial authorities. Athletics have done much to put an end to these tribal animosities. Games are now played between pupils who, a few years ago, could have met in no friendly competition.

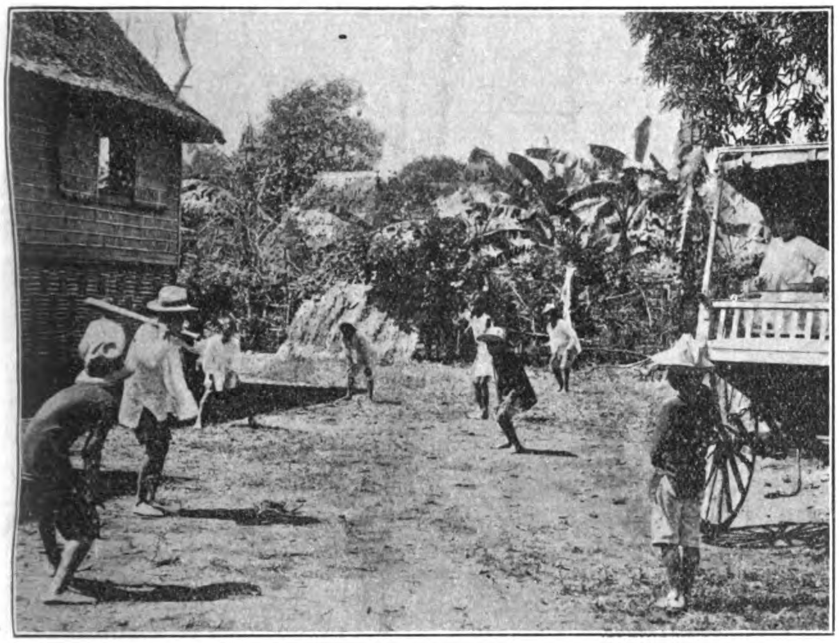
Following the general plan adopted in Bukidnon, the department has provided for the organization of two types of agricultural schools: (1) Day schools known as "settlement-farm" schools with from 3 to 6 hectares under cultivation; (2) dormitory schools for older pupils with about 16 hectares under cultivation. Schools of these two types are now being organized in Davao, Cotabato, Lanao, and Sulu. The general plan provides for the organization of one large dormitory school in each province and several schools of the settlement-farm type, the latter being especially for the Mohammedan Moros and pagans. Ten schools of this type are being organized in Davao and three in Cotabato. Agricultural schools with dormitories attached are established at Lumbatan, Lanao; Kudarangan, Cotabato; and Lais, Davao, which it is proposed to remove to a more favorable location as soon as funds are available. Each school is being furnished with essential equipment.

Nursery work has been included in the regular course of instruction at the agricultural schools. This includes instruction in the care and propagation of mango, orange, and lemon trees and the principal native fruits of Mindanao, as well as ornamental and shade trees.

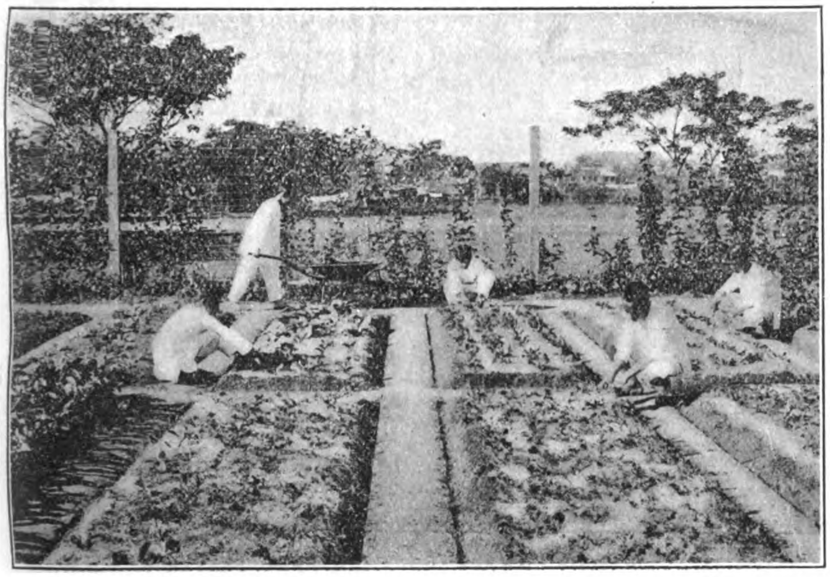
Sea Farming

Three lines of marine work have been outlined for the schools of the south Sulu district. They comprise the collection, preparation for the market, and marketing of (1) sponges, (2) button shells and (3) trepang. Each school in the south Sulu district will undertake one or two lines of this work. Some sponges and trepang of fair quality have already been prepared for the market in the schools of south Sulu. This work is well adapted to the people of those islands where no agricultural land is available. The islands are of coral formation and the inhabitants have always lived on and from the sea.

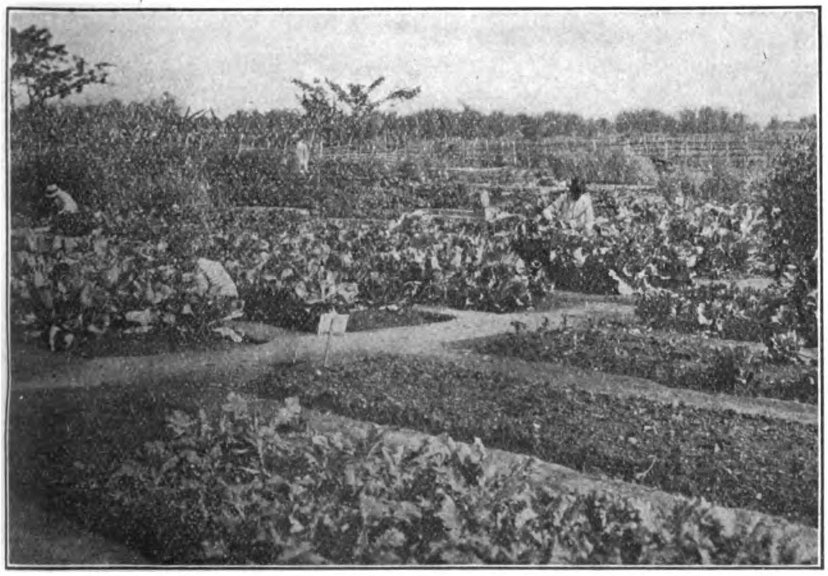
To-day the Philippine public-school system is probably the most highly centralized system in the world, but at its beginning each teacher was largely a law unto himself as regards the subjects taught. Study of the needs and abilities of pupils and communities and experimentation have resulted in the formation of standard courses in academic work. These courses have been produced by teachers, superintendents, and directors working together in committees and taking into consideration recommendations from the field. Courses are not adopted for any term of years, but are being changed constantly as new investigations develop new facts that demand further adjustments. Special adaptations are authorized in the public schools among the non-Christian people. Members of the Bureau are encouraged to criticize the courses of study and to make suggestions looking toward their improvement.



Indoor Baseball (out of doors) near Paranaque, Rizal Province



School Garden, San Andres Primary School, Manila



A Well-kept School Garden, Bulacan, Bulacan

Special Features of Courses of Study

The most difficult problem in our schools is to get pupils to speak English, and to this end instruction in colloquial and playground English has been introduced. Conversation based upon the usual activities of the home, market, school, and playground has been emphasized, and has done much to improve the English spoken by the pupils. In the secondary courses the absence of languages, except Latin as an optional subject in the fourth year, denotes a breaking away from the education tradition that has so long practically dominated the secondary course of study. Much is gained by so doing; emphasis can be placed upon English, the language of instruction, which in itself provides the desired cultural content; and the confusion incident to the acquiring of two languages at the same time is avoided.

In a land of great natural resources, but backward industrial development, it is highly desirable that students gain an appreciation of their country's economic problems. For this purpose a course in the economic conditions in the Philippines was placed in the last year of the high school. Preceded by a year's study of physical and commercial geography, this course admirably answers the purpose of giving the students the understanding of Philippine conditions and related economic principles that is needed to comprehend the lines along which agricultural and industrial progress must follow. This course which includes only so much of economic theory as is needed to interpret Philippine conditions, has turned many a boy from the law, which has such a fascination for the Filipino student, to agriculture, forestry, medicine, education, or veterinary science.

Why English is the Language of Instruction

English was made the language of instruction because linguistic unity is the most important step toward national unity. English also means contact with the ideals compatible with democratic government. English, too, is the commercial language of the world, especially of the Far East. These reasons for the use of English were early apprehended by all, but there was some talk at first of temporarily using the dialects. For two years a Visayan primer was used in the schools of Agusan, but was abandoned because it was found that pupils taught in English made greater progress.

Opposition to the use of English has always existed in some quarters. In recent years there has been started a movement to use the dialects in the primary, especially the barrio schools, while retaining English in the higher grades. Aside from the practical difficulties of such a scheme, it would mean a caste system of social organization, the abandonment of the attempt to establish linguistic unity as an important step toward strengthening national feeling, and the placing of a serious obstacle in the way of the inculcation of democratic ideals. The adoption of this plan would be a step backward for the Filipino people, a step which, it is believed, they will never be willing to take. The postponement of the date when English became the official language was a hard blow to the spread of that language, and, therefore, to the establishment of a common tongue. The present practice of permitting English-speaking employees to speak Spanish and the dialects in Government offices is also a great hindrance to progress. The day when the ability and disposition to use English will be a *sine qua non* for the holding of any civil-service position, and when the head of each department, bureau, division, or office will insist upon the use of English in all correspondence and, wherever possible, in all oral official transactions, will see a great step in advance. The Bureau of Education has enjoyed the coöperation of other bureaus in this matter; it now bespeaks such coöperation in even greater measure.

Athletics in Education

The athletic program of the Bureau of Education consists of group games; the special forms of athletics such as baseball, basket ball, track and field sports; playground activities; color competitions; and calisthenics. The aim sought is to have every

pupil take part in some form of games or athletics that will result in his securing suitable physical training.

This athletic program has been carried out most effectively. In fact, progress can be reported far beyond what was expected. During the school year 1913-14 this Bureau hoped to realize its aim with respect to 80 per cent of all the pupils enrolled in the public schools, but reports from the various school divisions indicate that more than 95 per cent of the pupils are now taking part in games and athletics in one form or another. It is possible that in certain cases those who are counted in the 95 per cent are not receiving all the attention they should have, but the program is actually reaching these children in such a way as to enlist their interest and enthusiasm.

The very general interest in athletics on the part of all classes is traceable directly or indirectly to the influence of the public schools. Other agencies have, of course, contributed their share toward the spread of athletics, but the Bureau of Education is primarily responsible for the general enthusiasm for athletics which is found everywhere in the Philippine Islands. As a result, there has been a noticeable improvement in the physical development of the younger generation; and the moral influence of clean, healthy sports has been felt.

Baseball and other forms of athletics had their origin in the games and contests among the soldiers in the early days of the American occupation. Enthusiastic teachers here and there began to interest their pupils in these sports, and slowly gathered about them a number of young men converted to the new athletic ideal. A deep and general interest in many forms of sport was developed as soon as use was made of the natural rivalry between towns and provinces. Since that time the interest of the people has been assured, although an immense amount of work has been required to guide and perfect the games and athletics. It was not until 1909 that the Bureau began to give sufficient attention to athletics, the development of which, up to that time, had been largely due to the members of the Bureau of Education acting as individuals.

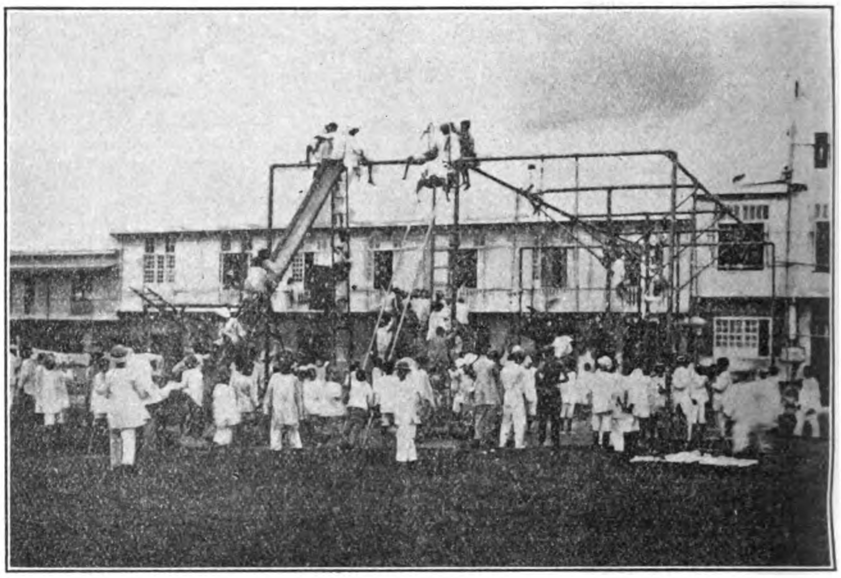
Track and field sports and baseball were the first to be taught to the boys. Basket ball was introduced somewhat later as a game for girls. These games were more spectacular and of course enlisted the interest of the people more quickly. It became very apparent, however, that these specialized forms of athletics did not reach more than a mere fraction of the pupils of the public schools. Since 1911, therefore, there has been a determined effort to introduce group games, calisthenics, indoor baseball, volley ball, and other forms of sport which permit of the participation of large numbers of pupils. Indoor baseball has rapidly gained in popularity and has practically crowded out basket ball as a girls' game. Since it requires inexpensive equipment and only a small space, it is rapidly becoming popular as a boys' game. Volley ball has also won a permanent place among the people.

The organization of interprovincial athletic associations has had much to do with the spread and development of athletics; and the history of school athletic meets is largely a history of these associations' contests. The first of these associations was the Southern Luzon Athletic Association organized in 1904. Since that time the Central Luzon (1908), the Manila (1909), the Visayan (1909), the Ilocano (1910), the southern Tagalog (1910), the Cagayan Valley (1912), and the Agno Valley athletic associations have been organized.

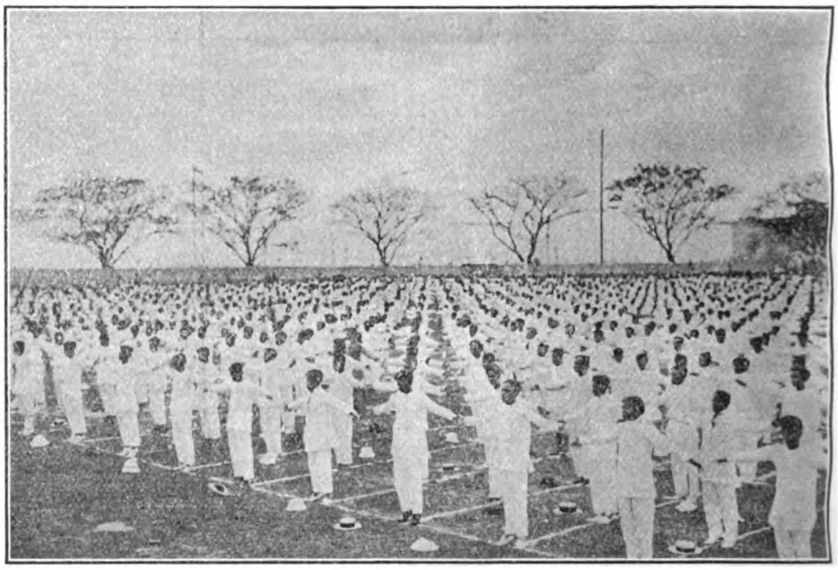
The minimum area of standard school sites for barrio schools is 5,000 square meters and for central schools 10,000 square meters. These standard sites are sufficiently large to provide space for playgrounds. Up to date the Bureau of Education has acquired 1,338 standard school sites of which 919 are from 5,000 to 10,000 square meters in area and 419 are 10,000 square meters or more in area. All of these are playgrounds, although, on account of lack of funds, the regular playground equipment is lacking on most of them.

Industrial Instruction

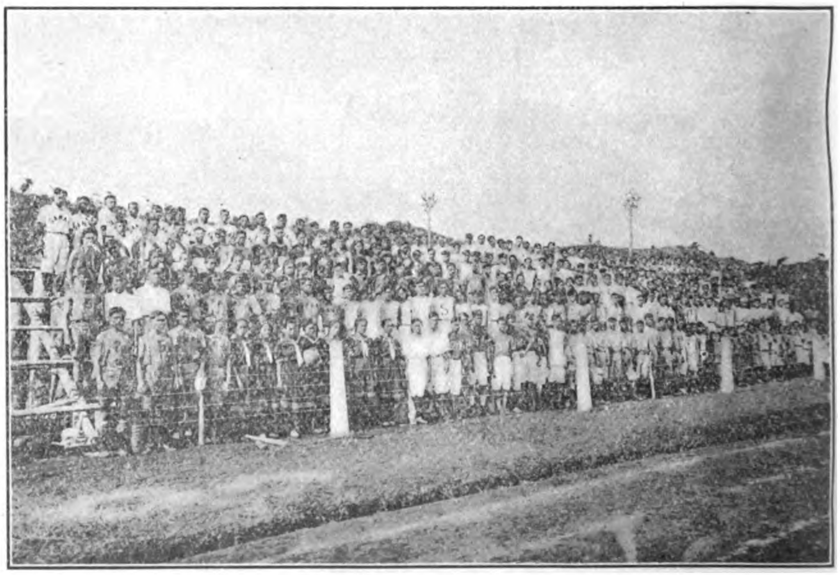
Very soon after the organization of the present school system in the Philippines it became apparent to the supervising officials and teachers of the Bureau of Education that definite



THE TONDO PUBLIC PLAYGROUND, MANILA, SHOWING SOME OF THE APPARATUS IN USE



CALISTHENIC DRILL BY 2,000 SCHOOL CHILDREN, PLAYGROUND DAY, PHILIPPINE CARNIVAL, 1914



ATHLETES ATTENDING THE INTER-VISAYAN MEET, 1913

instruction along industrial and vocational lines should form an integral part of it. Little was being done in agriculture for instance, beyond the cultivation of a few staple foods, and the methods in use were those which had been followed by the farmers for many generations. The mechanical arts were limited in number and still in a primitive state of development, while a few household industries only, such as the weaving of mats, hats, and cloths, were being carried on with some degree of success.

To touch the life of the people at really vital points through proper industrial training in the schools required the accumulation of a considerable amount of data regarding prevailing economic and industrial conditions, as the basis for the formation of industrial courses adapted to the needs of the children.

Tentative outlines of such courses were prepared and began to appear during the years 1904 and 1905, and the teaching corps began to give greater emphasis to industrial work in the public schools. However, as late as the fall of 1907, much of this work was of a miscellaneous and haphazard character. An Insular exhibit assembled in Manila late in that year consisted, in the main, of small models of agricultural implements, household utensils, and implements used in connection with fishing. A very small per cent of the work exhibited was salable, with the exception of a small amount of furniture made in the provincial trade schools. The real growth of industrial work in the Philippine public schools dates from the year 1908, when a very general impetus was given to such training through a reorganization of the primary and intermediate courses, a definite portion of the school day being set aside for industrial work. The fact that no normal pupil is promoted from a primary or intermediate grade without participating in industrial work, indicates how thoroughly that work has been incorporated into the public school system and how important it is considered.

The Philippines possess vast unused resources—hundreds of thousands of hectares of fertile land, hundreds of millions of cubic feet of first-class timber, and valuable mineral deposits. The development of these resources will mean the prosperity of this country and its citizens. To increase the production of raw materials and to bring about their manufacture into finished articles of commerce is an important aim of the prescribed program of industrial instruction. Filipino children are being taught to take an active part in the economic life of this country. Hand training is pursued not only to give manual skill and dexterity, but also to make the child a potent factor in contributing to material development. This result is being obtained, even in the primary grades, by making the industrial work have a real commercial value. When pupils in these grades realize that the baskets and embroidery they are making and the garden products they are raising represent more money for themselves and their families, there results not only a wider appreciation of the importance of such work, but also the preparation of many potential workers, who will later contribute directly to developing the resources of these Islands. Such training with the commercial side further emphasized is continued in the intermediate grades in agriculture, woodwork, and household industries, and is increasing the number of pro perous adult workers trained to engage in industrial and agricultural enterprises.

The Filipino view point respecting manual labor, before the present plan of industrial work had been thoroughly established in the public schools, was similar to that prevailing in other parts of the Orient where persons engaging in manual work were, until recently, considered to be at the foot of the social scale. The attitude of the Spanish Government, during its many years of rule, did not tend to raise in the popular esteem the position of persons pursuing the different trades and skilled occupations. That the Filipino, however, was not bound by prejudice with respect to such matters may be inferred from the readiness with which he has come to accept the present plan of popular education. The instances in which public school pupils trained in different manual occupations, have obtained positions of trust at a satisfactory remuneration, have done much to convince the public at large of the dignity of manual labor and its place in any progressive country.

Four Principal Lines of Endeavor

It has been the purpose of this Bureau to extend the established home industries and to introduce new ones, not that they will in any degree supplant agriculture or other existing industries, but that they may supplement these industries. Agriculture is the principal pursuit of the Filipino people, but there are certain seasons in all parts of the Islands when those who till the fields are not busy all the time, since they are awaiting the return of the season for cultivating and planting the fields or for harvesting the crop. During these periods of inactivity, the annual income can be considerably increased, if organized industries exist through which the disposal of handicraft articles may be facilitated. Furthermore, there are in the Islands from two to three millions of women who can, with advantage, take up some form of home work, such as embroidery or lace making. It is in this large field that the Government has undertaken to encourage home industries that will promote the welfare and prosperity of the entire country.

Effort is consequently being made to establish home industries along lines similar to those followed in the countries of continental Europe. Local materials as well as foreign are used in fabricating a large variety of articles well adapted to manufacture in the homes of the people. Thirteen new fiber plants yielding 16 new fiber materials have been discovered, and from 5 previously known fiber plants 10 new materials have been obtained. Furthermore, from 29 fiber materials already known 63 important new articles have been fabricated. Some of the industries which are taught in the public schools are embroidery, bobbin lace, point lace, Irish crochet, weaving, macramé, basketry, slipper making, the weaving of various articles from the multitude of native fibers, pottery, bamboo and rattan furniture making, and cabinet work.

The promotion of this work is being facilitated by the School of Household Industries, which has been in operation for more than two years. Women enter the school for a course of instruction, upon the completion of which they return to their homes, organize classes, and establish working centers for the production of lace and embroidery.

Since the introduction of commercial woodwork in one of the provincial trade schools in 1907, this type of shop work has been introduced very rapidly into other schools and at present is given in all trade schools and provincial school shops, as well as in many of the municipal school shops. The first trade school to undertake commercial work did a business of about P5,000 in 1907. From 1907 to 1910, the work was extended to three other trade schools and resulted in a total output of P85,000. During this period the four schools had an average enrollment of 450 pupils.

Annual Trade School Increase

Since that time the number of trade schools has increased each year, with a corresponding increase in the attendance and the value of work sold. During the year 1914 there were 19 authorized trade schools with an attendance of 2,304 pupils, and an output of P147,672.62. Of this amount the pupils received P27,191.70 for work done outside of school hours, the cost of material was P77,547.96, and the Government surcharge amounted to P27,071.13. During the same period 13 provincial school shops with 748 pupils sold P10,981.37 worth of work, and 267 municipal school shops with 4,722 pupils, produced articles to the value of P37,894.28, thus making the total value of the work turned out by trade schools and school shops during the year 1914 P196,548.27. The total value of commercial work sold from all schools since the introduction of this work in 1907 is P909,653.99. Of this grand total the amount paid to students was P198,697.95, the cost of materials was P511,095.71 and the profit to the Government was P128,558.28. The value of tools and machinery in the trade schools and provincial school shops is P252,246.77.

In the agricultural schools the main emphasis is given to agriculture, and dormitory accommodations are provided for the students. There are four agricultural schools which are in session during the entire year, the largest being the Central Luzon Agricultural School. There are 657 hectares in the school

farm, 105 hectares of which are under cultivation. The school is operated as an industrial community.

Model Farms Cultivated

A farm school is a type of intermediate school that gives instruction in farming adapted to meet conditions in the Christian provinces. A model farm of from 10 to 12 hectares is cultivated. The course in farming and the course in housekeeping and household arts are given in all farm schools. There are at present 8 farm schools in as many different provinces. These schools are supported jointly by the Bureau of Education and the provinces and municipalities in which the schools are located. Home extension work is emphasized, as is seed selection and the intensive cultivation of local and staple crops. Each farm is organized as a model Filipino farm, although it is furnished with such additional equipment as correct agricultural education demands.

The 1913 corn campaign was a continuation of that held during 1912 and extended over into the early part of the year 1914. It proved even more successful than that of the preceding year. The 1912 corn campaign helped to direct the attention of pupils, teachers, and the public at large to the desirability of increasing the cultivation of corn and of using it as a human food. This campaign emphasized two facts—the advisability of increasing the variety of foodstuffs for local consumption, and the urgent need, in most provinces, of another staple food crop to meet the frequent food crises resulting from the failure of the annual rice crop, due to drought or to the inroads of pests. This effort stimulated interest in corn and is in part responsible for a far-reaching activity among the people in enlarging the area of land planted to corn. It has also inculcated a wider appreciation of corn as a food.

The extent to which the corn campaign may have influenced the wider cultivation of this cereal is shown by the fact that for 1912, 302,506 hectares were planted to corn while in 1913 there were 383,709. In the former year 2,500,000 cavans were harvested, while in the latter year the yield was nearly 4,500,000 cavans. The average yield per hectare in cavans increased from 8.2 in 1912 to 11.3 in 1913.

A brief account of the 1914 Insular exhibition of this Bureau throws some interesting light upon the character and amount of industrial work done during a part of the 1913-14 school year. This exhibition was held in connection with the Second Philippine Exposition in February, 1914. It was housed in its own special building erected by students of the Philippine School of Arts and Trades. All provinces sent samples of the best industrial work made in the schools. Over 51,000 articles were placed on exhibit, valued at nearly P99,000. By grouping the exhibits by provinces and, to a certain extent, by classes of work, it was possible to make valuable comparisons in the development of each class of work being taught in the various provinces. In addition to the exhibit of handicrafts, fine needlework, and woodwork, a special display of the work of farm schools was held.

Some Pertinent Features of the Year's Work

The past year has shown a steady growth in all phases of industrial work. This is true both of the character of the work done and of the amount of salable articles produced. Above all, the problem of standardizing the different lines of industrial work has been carried forward successfully. Coexistent with the plan of standardization, greater attention has been given to the problem of centering the efforts of communities on those handicrafts and industries which, by reason of local conditions, are capable of greater development. Appreciation of the value of industrial work is greater than ever before.

In the furtherance of these undertakings, various means have been utilized. Embroidery designs graded to keep pace with the advancement of the pupils and selected with the idea of developing a home industry have been widely issued to the field. In addition some 5,000 perforated patterns have been supplied to the field. These patterns bear written instructions for using and a statement of the quantity and quality of materials needed, the number and make of embroidery thread, the stitches which are a part of the design, and the amount of padding necessary. Reports from the field show that these designs and patterns have been of great help in securing satisfactory results in embroidery work.

Designs are furnished the field not only for embroidery, but also for the various handicrafts. These are sent out only after they have been practically tested through the manufacture of the article called for in the design. This testing is done by artisans attached to the General Office, who are pensionados from the Philippine Normal School and receive credit for this demonstration work as a part of their industrial training.

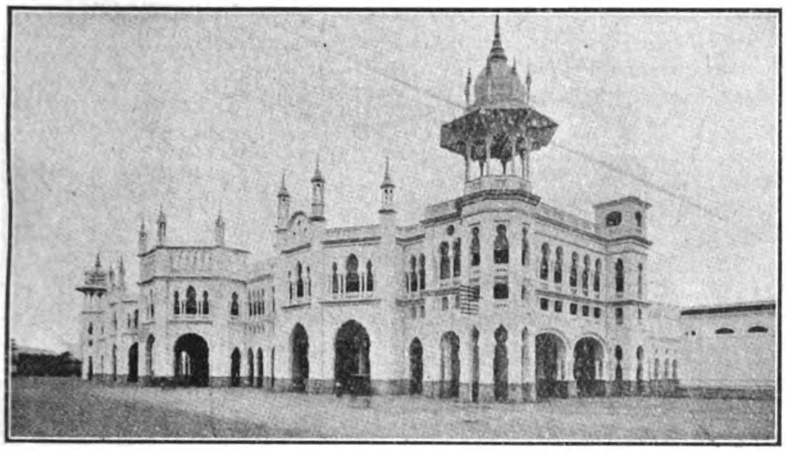
The Schools as a Civic Factor

After the fortunes of war had transferred the Philippine Islands from the tutelage of Spain to that of the United States, the latter nation declared as its policy the establishment of a democratic form of government in the Archipelago. To prepare a larger proportion of the Filipino people for participation in such a government was one of the chief purposes of the establishment of the Bureau of Education. This preparation included, first of all, giving the Filipino people opportunity of acquiring a common language as a step of prime importance in the development of national unity. The selection of English as this language meant contact with the ideals compatible with democratic government, and the appointment of American teachers meant contact with these ideals embodied in personalities and therefore in the form most potent to influence the Filipino youth The effective carrying out of this policy depended, not so much upon the establishment of a democratic form of government, as upon the development of a truly democratic social organization. Athletics and industrial work have contributed much toward the democratization of the people, and all phases of school activities have worked together to promote the growth of a middle class which, experience has proved, is a requisite for successful popular government.

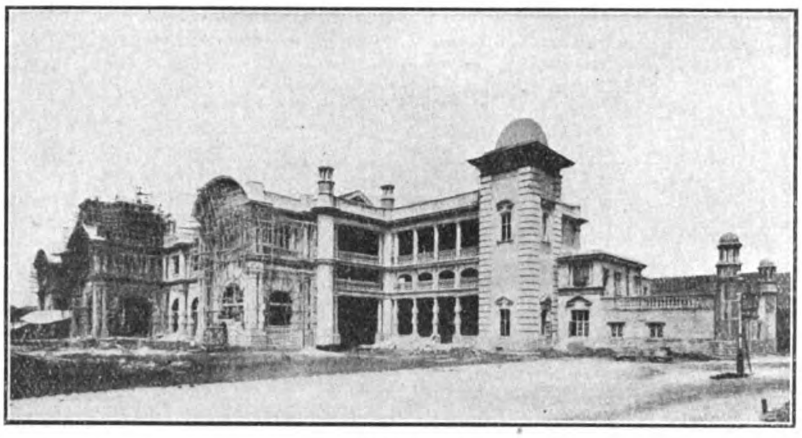
The public schools are making a notable contribution to the body politic. Of the voters who, at the present time, are qualified as electors because they possess certain educational qualifications, a considerable percentage claim an education in English. During the school year 1912-13, 10,938 boys completed the primary course. During the school year 1913-14, 11,398 boys completed the same course. These 22,336 boys, potential electors, the output of the primary grades of the public schools of the Islands for only two years, equal approximately 22½ per cent of the present number of electors claiming educational qualifications; and the number of boys who graduate from the primary course is bound to increase steadily.

As an evidence of the increasing popularity of the public school system and the growing demand for primary education, it is only necessary to invite attention to the fact that of the whole number of primary graduates in the past ten years considerably over one-third completed the course during the 1912-13 and 1913-14 school years. These boys who finished the primary course at the average age of between 14 and 15 years have, it is believed, had a training that, when they become of age, will place them considerably above the average elector in breadth of view and comprehension of the country's needs. Graduates of the intermediate and secondary courses are still better prepared for citizenship. In 1914, 3,540 boys and 1,045 girls completed the intermediate course, and from this class one may expect many local leaders. In 1914, 340 boys and 67 girls completed the secondary course, which fits them for leadership in a broad way. These figures will serve to give some idea of how great is the work of the Bureau of Education as a civic factor.

The public schools have not only created an enthusiasm for education, but have also played an important part in the general intellectual awakening which is taking place, and which is an indispensable condition of civic efficiency. Outside the public schools the chief evidence of this awakening is the great increase in newspapers and in the number of their subscribers, the increased purchase of books and use of libraries, and the growth and improvement of the private schools. By spreading information and stimulating thought, the schools and allied agencies are laying the foundation for enlightened public opinion and an electorate that comprehends its responsibilities.



Kuala Lumpur Station Hotel



Ipoh Station Hotel

FEDERATED MALAY STATES RAILWAYS

[Report of Acting General Manager G. H. Fox for the Year 1914]

The year 1914 compared with previous ones has been exceptional in so far as for the first time on record receipts fell below those of the preceding year. The first half of the year opened with a steady increase of business but on the outbreak of war in Europe there was a set-back which continued till the close of the year. The opening of the first section of the Federated Malay States Railways, joining up the Main Line on the West Coast with the Siamese Railways, and the opening of the first section of the Federated Malay States Railways in Kelantan were the only other outstanding events of importance.

The total mileage of lines open for traffic, including leased lines (Johore) on 31st December, 1914, was 822 miles 42 chains, an increase of 51 miles 42 chains. The length of sidings was increased by 12 miles 27 chains, making a total of 115 miles 22 chains and 937 miles 64 chains of railroad in operation.

The capital account of the Open Lines amounted to $80,635,927.83 on 31st December, 1914, as follows:

Federated Malay States Railways	$80,031,249.02
Leased Line—Johore State Railway (Federated Malay States expenditure only)	175,693.95
Total	$80,206,942.97
Automobile Service	428,984.86
	$80,635,927.83

This total represents an increase of $11,006,481.37 over the previous year, of which $679,763.15 is due to the transfer of certain expenditure on rolling stock and special service works originally debited to the Johore Loan Account, the balance, $10,326,718.22, representing the actual expenditure on capital account (open line) during 1914. It will be noticed that in this account a departure has been made with the result that "Lines open for traffic" are for the first time shown as distinct from rolling stock, workshops, etc. Formerly, expenditure under these headings was included in the total cost of the various sections of the line, but in order to conform with more modern methods of railway accounting and to show clearly the expenditure on the respective services, the necessary adjustments have been made. The total expenditure on special services on capital account during the year amounted to $4,962,823.20. The principal items are as follows:

Additional Rolling Stock, Locomotives, etc....	$1,916,291.99
New Station and Hotel, Ipoh ...	254,367.92
New Workshops, etc., for Signal and Telegraph Department ...	95,980.24
Doubling Line between Bukit Timah and Tank Road, Singapore...	153,366.51
Improvements, Port Dickson Branch	306,009.98
Four Rakes of Mail Type Coaches	223,146.64
New Wharf Accommodation, Port Swettenham	700,362.13
Additional Goods Stock	106,555.06

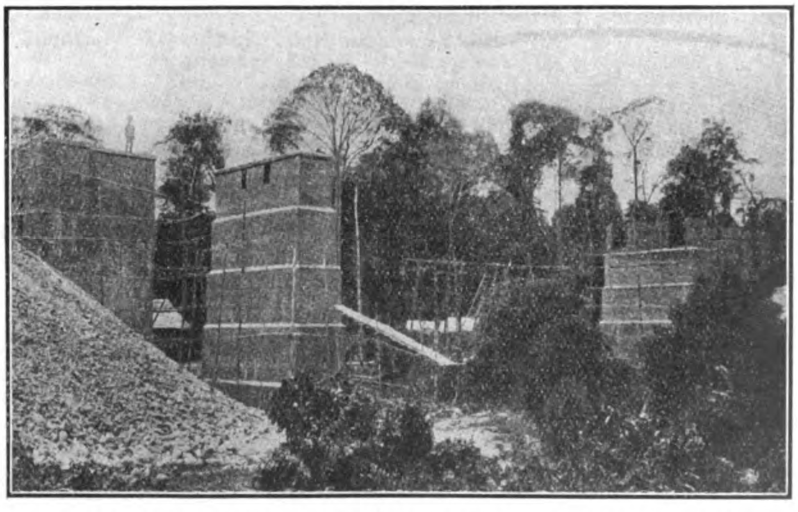
The average capital cost per mile of line open on 31st December, 1914, was $114,043.41 as compared with $106,415.78 at the end of 1913. These figures do not include the Federated Malay States Railways' expenditure incurred on account of the Johore Line, since January, 1912. Special services on revenue account were responsible for an expenditure of $769,365.41 as against $1,107,696.75 in 1913, a decrease of $338,331.34.

The capital account of lines under construction and surveys on 31st December, 1914, stood at $13,140,608,86, an increase of $3,333,846.31 over the amount at the end of 1913.

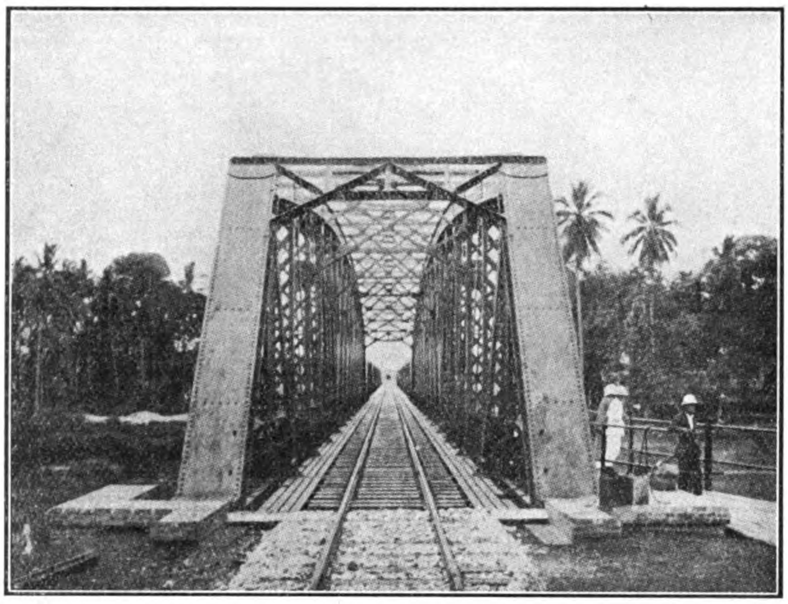
The gross earnings from all sources, including the motor services, amounted to $9,073,759.75 as compared with $9,548,374.00 in 1913, a falling off of $474,614.25, or approximately 5 per cent. Of this decrease, passengers (including season tickets and excess fares) are responsible for $468,825.87; live stock, $39,793.65; horses, carriages and dogs, $13,264.04; special trains, $323.93; and motor services, $4,957.01; whilst there are increases under the headings parcels and luggage, $10,991.52; goods, $6,335.61; sundry receipts, $31,880.71; and reimbursements, $342.41.

The whole of this decrease of $474,614.25 is to be attributed to the general stagnation of trade consequent upon the war in Europe, and the following figures show, that whilst during the first six months of the year we show an increase of $209,561.22, in the last half year we have to record a falling off of $684,175.47.

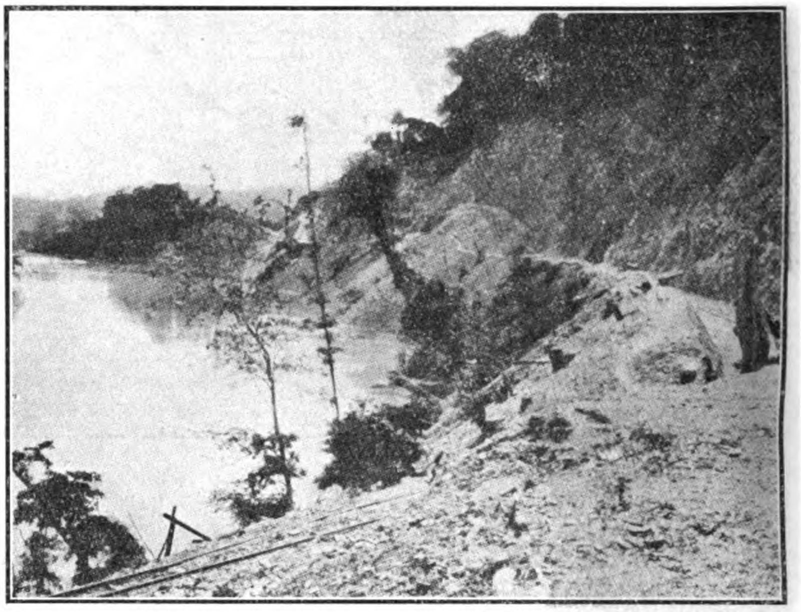
East Coast Railway, Pahang Section—False Work for 150 ft. Span Bridge at Sungei Cheka



East Coast Railway, Pahang Section—Krambit Bridge, two Spans of 20 ft., one of 100 ft., Over Sungei Krambit



Kedah Railway, Muda Bridge, Looking Towards South



East Coast Railway, Pahang Section

Monthly Earnings Charge

	Increase	Decrease
January	$84,915.55	
February	17,303.41	
March	25,284.54	
April	42,920.76	
May...	23,024.78	
June...	16,113.18	
July	...	$ 18,931.86
August	...	106,274.49
September	...	169,916.86
October	...	135,302.75
November	...	141,265.32
December	...	112,484.19
	$209,561.22	$684,175.47
	...	209,561.22
Net decrease ...		$474,614.25

In considering the falling off in traffic during the year under review it should be borne in mind that the new sections opened during the year, as enumerated below, are responsible for $203,690.17 of the total earnings, so that deducting this sum from the total gross earnings we are faced with a falling off in traffic in respect of the line open on 31st December, 1913, amounting to $678,304.42.

Passenger Traffic

	1914 Number of passengers	1914 Amount $ c	1913 Number of passengers	1913 Amount $ c	Decrease Number of passengers	Decrease Amount $ c
First class ...	240,465	423,167.10	286,555	489,629.11	46,090	66,462.01
Second class ...	1,362,818	871,157.86	1,607,207	984,204.56	244,389	113,046.76
Third class ...	10,371,462	3,377,188.85	11,249,897	3,668,736.44	878,435	291,547.59
Total ...	11,974,745	4,671,513.75	13,143,659	5,142,570.11	1,168,914	471,056.36

Goods Traffic

	Tons.	Earnings.	Earnings per ton.
1914...	1,140,253	$3,587,341.40	$3.15
1913...	1,172,794	3,581,005.79	3.05
Decrease	32,541 Increase... ...	$ 6,335.61 Increase	$ .10

Live Stock Carried

	No. of head.	Earnings.	Earnings per head.
1914...	91,866	$ 97,754.81	$1.06
1913...	136,457	137,548.46	1.01
Decrease	44,591 Decrease ...	$ 39,793.65 Increase	$ .05

The earnings per mile of line open per week, exclusive of motor services, amounted to $217.70 as compared with $241.48 in 1913.

The earnings per train mile are as follows:

Gross earnings	$2.66	$2.83
Expenditure	2.06	2.02
Net earnings...	.60	.81

Working Expenses

The gross working expenses for the year, including special services on revenue account and motor services, amounted to $7,044,572.53 as compared with $6,840,677.77 in 1913, an increase of $203,894.76. or 3 per cent. The 1914 figure for the first time represents the actual expenditure incurred in respect of the period 1st January to 31st December, 1914, although a portion of this sum amounting to $243,611.88 was not actually paid until 1915. This procedure was first introduced in 1913, and a reference to para. 14 of my 1913 report shows that the year's expenditure included a sum estimated at $267,113.22 over and above the usual 12 months' expenditure. If this figure is deducted from the 1913 expenditure we have to deal with an increase of $471,008.

The increase of $203,894.76 is explained as follows:

General Management...	$ 34,779.16
Traffic Department	136,436.43
Engineering „	22,762.45
Stores „	3,750.39
Telegraph „	143,309.22
	$341,037.65
Less Decreases— Loco. Dep. $121,106.66; Motor Services...... 16,036.23	137,142.89
Net increase...	$203,894.76

Annually recurrent expenditure by itself shows the following results when compared with similar expenditure for 1913:

Increases—	General Management	$136,057.09
	Traffic Department...	135,623.35
	Locomotive „ ...	197,985.34
	Engineering „ ...	31,750,71
	Stores „ ...	3,430.39
	Telegraph „ ...	53,415.45
		$558,262.33
Less Decrease—Motor Services ...		16,036.23
Net Increase—(9%) Annually Recurrent Expenditure		$542,226.10

One hundred and ten thousand dollars of the increase under General Management is explained by the rental of the Johore State Railway in 1913.

Expenditure under the heading special services on revenue account is less by $338,331.34, made up as follows:

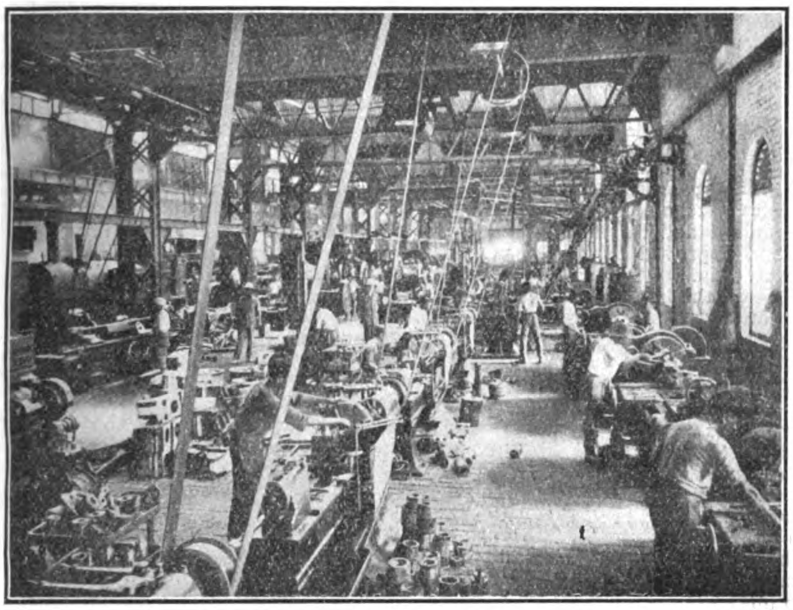
Decreases—	General Management		$101,277.93
	Locomotive Dep. ...		319,092.00
	Engineering Dep. ...		8,988.26
			$429,358.19
Less Increases—	Traffic Dep....$	813.08	
	Stores Dep....	320.00	
	Telegraph Dep.	89,893.77	91,026.85
Net Decreases—Special services on revenue account			$338,331.34

The department showing the largest increase under annually recurrent expenditure is the Locomotive—*viz.*, $197,985.34 or 8 per cent. Of this sum "Fuel" is responsible for $134,033.31, an increase of 17 per cent. over the amount paid in 1913.

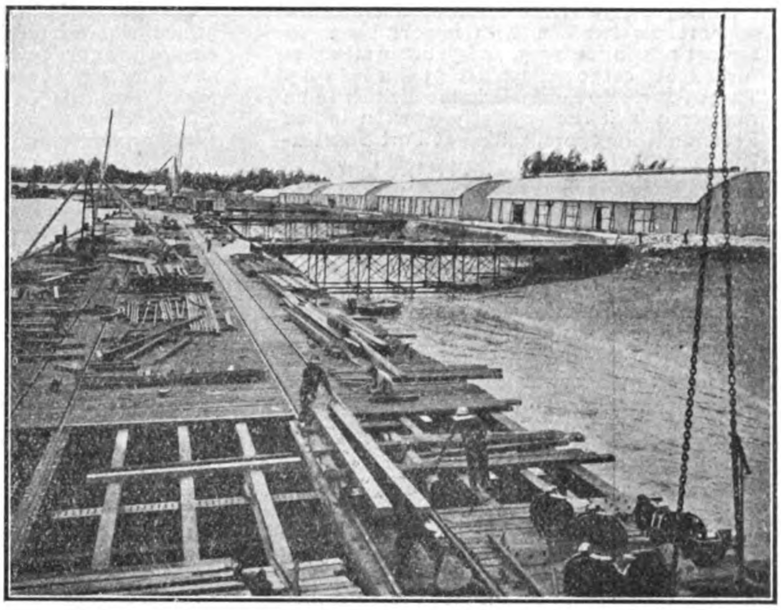
The proportion of working expenses to earnings works out to 77.50 per cent. as compared with 71.36 per cent. in 1913. If annually recurrent expenditure and special services on revenue account are separated the results are as follows:

	1914	1913
Annually recurrent... ...	68.99 %	59.71 %
Special services...	8.51 %	11.65 %
	77.50 %	71.36 %

The expenditure on the Kelantan Section of the Line (exclusive of any proportion of head



MACHINE SHOP, CENTRAL WORKSHOPS



RUBBER GODOWNS, PORT SWETTENHAM

office expenses) amounted to $97,277.37, or $36,077.23 in excess of the amount earned. The total is made up as follows;

General Management	$ 205.24
Traffic Department	31,465.70
Locomotive „	53,687.77
Engineering „	11,801.87
Telegraph „	113.70
Stores „	3.09
Total ...	$ 97,277.37

The dividend earned by the open lines on a capital of $80,206,942.97 and a net profit of $2,033,358.18 works out at 2.53 per cent. as compared with 3.93 per cent. in 1913.

Motor Service, Capital Account

The capital account of the motor service stands at $428,984.86 on 31st December, 1914, as compared with $433,915.37 at the end of 1913. During the year a new Colonial Napier car was bought to replace the old inspections car which is now running on the Pahang service. The cost of the car was $5,459.49. A sum of $10,390 was realized and credited to capital account as follows:

By sale of cars	$ 6,500.00
„ buildings	3,890.00
Total...	$10,390.00

Motor Service Revenue

The total earnings during the year amounted to $36,568,22, made up as follows:

Pahang service	$35,233.53
Miscellaneous	1,335.69
Total...	$36,568.22

These figures as compared with 1913 show a decrease of $4,957.01, of which amount $4,345.64 is due to the cessation of the Klang-Kuala Selangor service in September, 1913. Two thousand three hundred and ninety-three fewer passengers were carried on the Pahang service than in 1913. The figure shown above for receipts includes a payment of $9,348.40 made by the Pahang Government to cover the loss of working that service. The expenditure on account of actual running expenses and repairs amounted to $44,316.82 as compared with $65,198.96, and the cost per car mile decreased from 53.6 cents to 49.6 cents. Depreciation on cars, machinery, etc., for the year 1914, calculated on a five years life, amounts to $4,797.27, bringing the total working account up to $49,114.09, resulting in a total cost per car mile of 55 cents as compared with 69.5 cents in 1913.

Motor Service Mileage

The total mileage run during the year (including 5,303 miles run by the inspection car) was 89,383 as compared with 121,559 in 1913, a decrease of 23,176 miles, arrived at as follows:

Pahang services—decrease	18,610
Kuala Selangor services—decrease ...	14,005
	32,625
Miscellaneous mileage—increase	439
Net decrease	32,176

The result of the year's working is a net loss of $12,545.87. In addition to this a loss of $660 has been incurred on the sale of buildings. This item has been included in the balance sheet under the heading of depreciation, together with the figures of $356,172.62 on cars and $1,517 on machinery, etc. It must be borne in mind that the depreciation shown in these accounts has not actually been provided, but has been introduced as a "book" entry only for the information of Government. The total loss incurred to date on motor service account is $298,168.25.

The train mileage for the year totalled 3,396,085 miles as compared with 3,351,405 in 1913, an increase of 44,680 miles.

	1914	1913
Ordinary	3,367,710	3,272,401
Special...	28,375	41,533
Non-paying	—	37,111
Total ...	3,396,085	3,351,045

Departmental expenditure per train mile shows the following results:

General Management	$ .09	$ .08
Traffic Department	.43	.40
Locomotive „	.82	.86
Engineering „	.61	.61
Stores „	.01	.01
Telegraph „	.10	.06
Total...	$2.06	$2.02

The total number of passengers carried during the year was 11,974,745 against 13,143,659 in 1913, a decrease in number of 1,168,914.

Goods and Passenger Traffic

The following is the distribution of classes for the last five years:

—	1910	1911	1912	1913	1914
First class	152,297	165,210	243,055	286,555	240,465
Second class	492,263	633,347	1,091,346	1,607,207	1,362,818
Third class...	8,389,969	9,549,339	10,254,872	11,294,897	10,371,462
Total passengers carried...	9,034,529	10,347,896	11,589,273	13,143,659	11,974,745

Comparison of coaching and goods traffic for 1914 and 1913 follows:

	1914	1913	Decrease
Goods carried in tons	1,140,253	1,172,794	32,541
Passengers carried	11,974,745	13,143,659	1,168,914
Live stock (head)	91,866	136,457	44,591

These figures do not include season ticket holders, passengers excessed on trains, workmen and scholars travelling on reduced fare tickets or free pass holders.

There was a decrease in the goods and mineral traffic received at, and forwarded by rail from, Teluk Anson and Port Swettenham. The following comparison shows traffic during the last 4 years:

Date.	Goods traffic received by rail and shipped from Teluk Anson. Tons.	Goods traffic received by rail and shipped from Port Swettenham. Tons.	Goods traffic forwarded by rail from Teluk Anson. Tons.	Goods traffic forwarded by rail from Port Swettenham. Tons.
1911... ...	32,487	37,570	109,159	207,894
1912... ...	34,947	44,569	125,654	219,037
1913... ...	42,955	53,795	137,393	250,852
1914... ...	42,496	53,414	120,820	233,046

The following is the comparison of the goods traffic dealt with at Penang and Prai during the same period, exclusive of departmental traffic carried free:

Date.	Goods traffic received by rail and shipped from Prai. Tons.	Goods traffic received and forwarded by rail from Prai. Tons.	Goods traffic received at Penang and shipped to Prai. Tons.	Goods traffic received by rail at Prai and shipped to Penang. Tons.
1911... ...	2,624	50,890	25,177	7,292
1912... ...	3,004	56,540	31,038	9,431
1913... ...	5,080	98,411	28,282	9,095
1914... ...	10,601	67,396	26,942	11,862

Note.—Prior to 1911 no register was kept for tonnage at Penang.

During the year, 121 ocean steamers called at Port Swettenham with import cargo as against 140 during 1913, and 59 ocean steamers for export cargo as against 53 during 1913. These figures do not include the British India steamers which run regularly between Indian Ports and Singapore, calling at Port Swettenham.

There was one meeting held by the Advisory Board during the year when questions affecting the port were discussed.

The wagon ferry between Johore Bahru and Woodlands has worked exceedingly well during the year, and the following figures show a very considerable increase in the number of vehicles dealt with:

	1912	1913	1914
Loaded wagons forwarded to Singapore	2,606	3,890	6,030
Empty wagons forwarded to Singapore	6,797	9,742	10,731
Loaded wagons received from Singapore	9,290	13,088	15,852
Empty wagons received from Singapore	230	205	580
Total number of trips ...	2,993	4,610	5,765

Fifteen thousand one hundred and forty-seven tons of rubber were exported through Port Swettenham against 12,892 tons during 1913, and 9,606 tons in 1912.

A sum of $15,119.82 was paid on account of claims, of which sum $4,693.33 was recovered. Rents for hotels, restaurants, restaurant cars and food stalls realized $39,237.40 against $35,376.45 in 1913, and $31,257.50 in 1912. At the close of the year there were 182 stations and 11 passenger halts open for traffic. There were 43 fatal accidents during the year. In seven cases railway servants were killed and the remaining 36 were mostly trespassers. There were 40 cases of personal injury during 1914. In 29 cases, railway servants on duty were injured, and the remaining 11 cases were accounted for by the injury of six passengers, one trespasser and four passengers in a private owned motor car colliding with a train at Pudu Level Crossing Gates.

There were 177 derailments during the year. Of these, only 29 occurred outside station limits; all were duly enquired into. There were 17 cases where level-crossing gates were run into and damaged by trains, and one case of damage to gates by motor bus.

On 28th February, 1914, the signalmen, numbering 51 men, gave 24 hours' notice to leave the service, forfeiting one month's salary. This course was adopted owing to an order issued by the Traffic Manager that on and after 16th April, 1914, they would be required to clean the locking frames, levers, catch handles, top of lever frames and electric table instruments in the signal cabins.

Immediately it was known that the signalmen intended to strike, the signals and points worked from unimportant cabins were disconnected, the signals being fixed at danger and the points worked by hand by a pointsman under the direction of a station master or clerk. This course only left a few important cabins which it was necessary to keep open and work by men competent to carry out the duties of a signalman. We had a number of European officers, who had the necessary qualifications, and these loyally assisted the department by taking duty in turn in the cabins day and night, and at the same time instructed new hands who had been engaged to take the place of the strikers. The latter soon realized that the precipitate action on their part to cause a dislocation in the working of the Railway and prove their services indispensable had been an utter failure, and petitions to His Excellency the High Commissioner followed.

His Excellency personally inspected a signal cabin at Kuala Lumpur Station and decided that the order referring to the cleaning of the cabins was reasonable and must be carried out, and that while under no circumstances were the leaders of the strike to be re-engaged, that the vacancies which had not already been filled might be offered from 1st May, 1914, to those men who had a good record of service and who are willing to implicitly carry out the instructions regarding cleaning the cabins. There was no lack of applications, and out of 51 men who left work 26 were selected for re-employment. They lost three months' salary and the use of free quarters during that period.

The Actual strength of the Railway Police Force on December 31, 1914, was:

1 Chief Inspector, 2 Inspectors, 1 Sergeant-Major, 3 Sergeants, 4 Corporals, 53 Constables, (first class); 411 Constables (second class) and 4 Detectives. One hundred and twenty-five men were recruited and approved of by the Adjutant, Police Depot, Kuala Lumpur, during the year; the quality of the men presenting themselves was about the average and every care was taken to prevent undesirables enlisting. The nationality of the enlisted men is: Sikhs, 78; Pathans, 34; Punjabi Mussalmen, 2; Brahmins, 11.

The discipline of the Force has continued to improve, this is due to the fact that even slight breaches of discipline are taken serious notice of, the number of men punished during the year was 175 and the fines imposed $243.71; as usual, the older men were the most troublesome and many of them had to be got rid of as being both useless and incorrigible. The detective branch was keep up to strength during the year. The men worked hard and tried their best to give satisfaction, but notwithstanding this the results achieved were far from satisfactory—that is, in detecting actual cases of theft and pilferage, but in enquiry work and in other spheres of usefulness these men were of much assistance.

Engineering (Open Lines, Ways, and Works)

The following renewals were made: 463 rails, 137,340 sleepers, 38 points and 48 crossings, 92,236⅞ cubic yards of ballast were supplied, and 83,648 cubic yards of earth for cessing deposited at banks. All level crossings were maintained in good order. Five new public crossings and three occupation crossings were provided. Eight thousand four hundred and seventy-six lineal yards of fencing were erected. A sum of $85,854.61 was expended in current repairs to buildings and wharves. The expenditure during the year on account of Minor works was $19,523.72. All bridges and culverts were kept in thorough repair; 11 longitudinal timbers on bridges were renewed; seven new bed timbers were put in; 215 bridges were cleaned and painted.

Thirty-three cases of land slips, floods and wash-outs were recorded during 1914. Of these, five wash-outs occurred on the Pass section between Bukit Gantang and Padang Rengas, causing much inconvenience and dislocation of traffic. The line between Seremban and Mambau was flooded four times, causing temporary supension of train service. Four cases of floods and wash-outs also occurred at and near Kuala Kubu, causing great inconvenience to passengers and suspension of traffic. The other cases of floods, etc., happened on different sections of the line during the heavy rainy season.

The cost of maintenance per mile of line open per week of the Federated Malay States Railway was $37.59 as compared with $35.91 in 1913. The expenditure on slips and wash-aways was $40,052,02. The 822 miles 42 chains of permanent way, together with the 115 miles 22 chains of loop line and sidings, were maintained in good running order.

The following is a comparative statement of sleepers purchased during 1913 and 1914:

Description.	1913	1914
First class	271,587	245,760
Second „	29,919	55,838
Third „	3,341	7,635
Total ...	304,847	309,233

The cost during 1914 was $479,664.27 compared with $496,948.87 in 1913.

Locomotives and Rolling Stock

All locomotives, carriages, wagons, motor cars, steam boats, tongkangs, machinery, weighbridges, turntables and other plant were maintained in an efficient state during the year. Fifteen new locomotives arrived during the year and were added to the stock—*viz.*, five "H" class tender engines and seven "I" class tank engines for open line, one "I" class tank engine for Pudu-Ampang, and two "I" class tank engines for Kuang-Batang Berjuntai Railway. The Railway is now in a better position as regards locomotives, but we are still short for the full train service. One small tank engine, "A" class, No. 125, was transferred to Construction Department. Five "O" class second-hand locomotives were purchased from the Burma Railway, the cost being $33,663,20, or $6,732.64 each in running order at Central Workshops. The open line stock of locomotives was 172 on 31st December, 1914, against 153 on 31st December, 1913. Fifty-nine engines of all classes passed through the Central Workshops for heavy and light repairs during the year, the same number as in 1913. Of these 59, 44 were paid for by revenue and 15 by construction votes. The cost per engine against revenue was $6,921.46 as against $6,186.03 in 1913, and the cost per engine mile was 6.54 cents in 1914 against 8.60 cents in 1913. Of the engines which passed through the shops, 32 were heavy repairs, the same number as in 1913. In addition to the above, five locomotives were repaired for the Construction Department.

The total engine mileage for the year 1914 was 4,653,895* compared with 4,259,599 in 1913, an increase of 394,296 miles, or 9.26 per cent. The average daily miles per engine taken on the 172 locomotives was 74.12 compared with 69.57 for 153 engines in 1913. The average daily mileage for engines actually at work was 104.76 against 109.49 in 1913. The consumption of engine fuel was: bakau 63,979 tons and coal 77,709 tons, and the cost per engine mile was 20.18 cents as against 20.73 cents in 1913, the figures per train mile being 21.77 and 24.03 cents, respectively.

Bogie Passenger Stock

Two first class, and eight first and second composites were built in England and erected at Central Workshops during the year. Four bogie carriages were condemned during the year. Eighteen carriages were fitted with electric light during the year. The number of carriages now so lighted is 48. The total stock of bogie passenger coaches on the 31st December, 1914, was 323 as compared with 298 in 1913. Three four-wheeled coaches were condemned during the year. The total stock of four-wheeled passenger coaches on 31st December, 1914, was 62 as compared with 65 in 1913.

Two hundred and five passenger coaches passed through the shops for heavy and light repairs as compared with 242 in 1913, at an average cost of $863.06 per vehicle as compared with $775.63 in 1913. The cost per train mile was 5.21 cents against 5.60 cents in 1913. Of the coaches which passed through the shops, 183 were heavy repairs against 217 in 1913.

Goods Wagons

Twenty new steel bogie coal trucks, 28-ton capacity, and three new bogie Well wagons of 12-ton capacity were erected and placed on service. The total stock of bogie goods wagons on 31st December, 1914, was 134 as compared with 111 in 1913. Three hundred and fifty-six steel covered goods wagons, 235 steel low-sides and 100 steel high-sides were procured and erected during the year, and many more were in process of erection at the close of the year. All these vehicles are on 2′ 9½″ diameter wheels of 10-ton capacity with the exception of steel high-sides, which are of 12-ton capacity. The bodies of 35 cattle wagons, 100 firewood trucks, 100 timber trucks and 12 fish vans were built in the Central Workshops and mounted on the frames sent out from England during the year. All these vehicles are on 2′ 9½″ diameter wheels.

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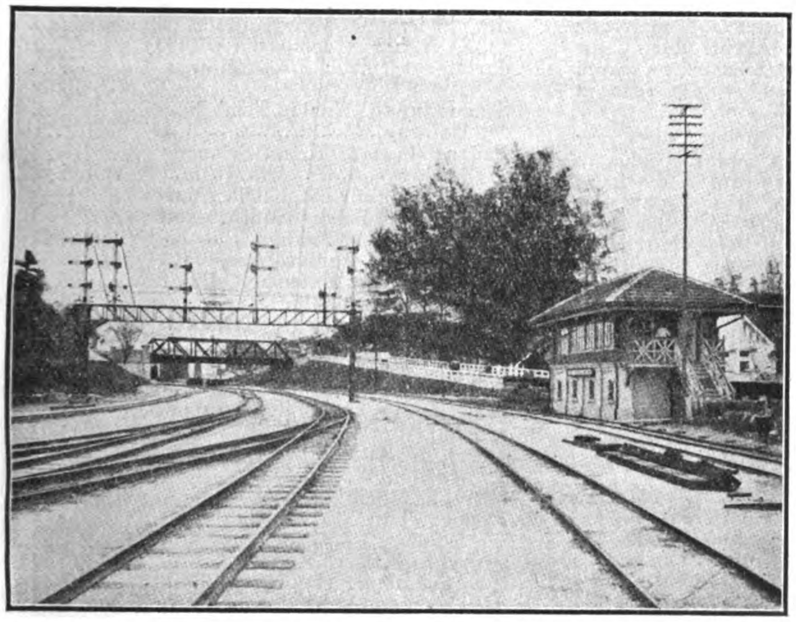
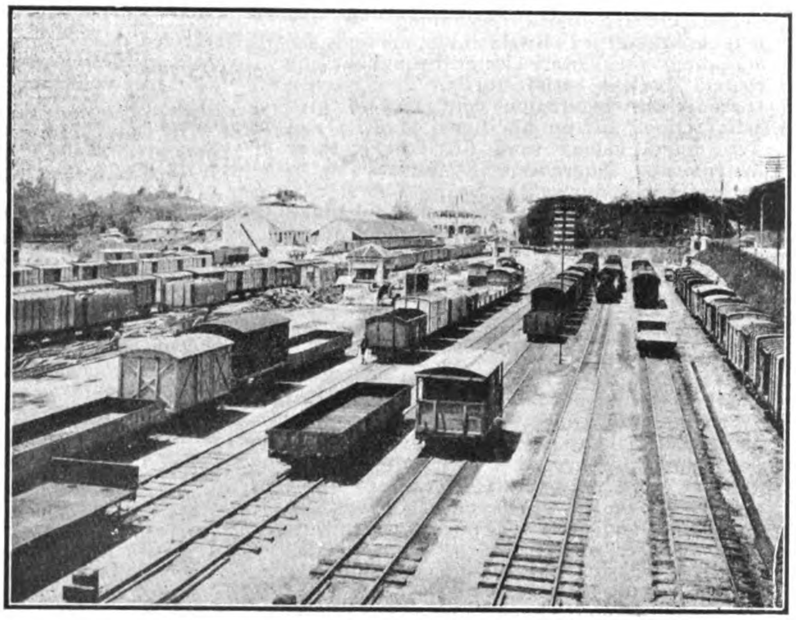
* The engine mileage and maintenance ballast miles for 1913 were shown separately—*i.e.*, 3,885,277 and 374,32[illegible] miles, respectively, making a total mileage of 4,259,599, these have been amalgamated for 1914.



SOUTH SIGNAL CABIN, KUALA LUMPUR



GOODS YARD, KUALA LUMPUR

The total stock of the Federated Malay States Railways open line four-wheeled goods wagons on 31st December, 1914, was 4,083 as compared with 3,178 in 1913, an increase of 905 wagons, or 28.47 per cent. One thousand one hundred and thirty-nine wagons of all types passed through the Central Workshops for heavy and light repairs during the year as compared with 886 in 1913. This represents an increase of 28.56 per cent. on the previous year's working. Of these wagons, 1,039 were paid for by revenue and 100 by construction votes. The average cost per vehicle against revenue was $130.59 as against $145.07 in 1913, and the cost per train mile was 3.99 cents in 1914 against 3.61 cents in 1913. Of the wagons which passed through the shops, 769 were heavy repairs, against 608 in 1913.

Steam Boats and Tongkangs

Two steam boats, *viz.*, stern wheeler "Thistle" and steam tug "Winifred," were purchased from the Duff Development Company, Kelantan, and one steel tongkang was converted into steam tug "Ethel" at Tanjong Pagar Dock, Singapore, and added to the fleet during the year. Twenty-three tongkangs were added to the fleet during 1914. Thirteen wooden tongkangs were broken up in 1914. The fleet of ferry boats and tongkangs on 31st December, 1914, was 11 and 69 as compared with 8 and 59, respectively, in 1913. The mileage of ferry boats plying between Penang and Prai, Johore Bahru and Woodlands, and Kota Bharu (Plikbang) and Kota Bharu Town was 52,553 compared with 51,290 in 1913, and the cost per mile was $2.70 against $2.30 in 1913, the mileage of launches at Port Swettenham and Tumpat not being reckoned, but all were maintained from the same provision. The increased cost for 1914 is due to the fact that three steam launches at Port Swettenham were docked, once each during the year in Singapore.

The two wagon ferries running between Johore Bahru and Woodlands were maintained in good order during the year. The wagon ferry and Traveller at Johore Bahru and Woodlands have been in constant use daily and are in good order. The total mileage of wagon ferries during the year was 9,956 compared with 8,371 in 1913, an increase of 1,585 miles or 18.93 per cent. The expenditure incurred in maintaining the Traveller and ferry boats during the year was $22,931.99 against $28,195.64 in 1913, and the cost per mile was $2.30 against $3.37 in 1913.

Kuala Krau-Pekan Launch Service

There was no addition to the fleet of steamers during the year for the Pahang river launch service and the stock remains the same as in 1913, *viz.*, motor launch "Tungku-Meriam" and steam launch "Sah." The mileage of two launches running on the Pahang river between Kuala Krau and Pekan during the year was 10,405 against 12,107 miles in 1913, a decrease of 1,702 miles in 1914. This is attributed mainly to the low water in the river on several occasions, and the launch services were suspended owing to very low river. The expenditure incurred in maintaining the two launches was $15,782.79 against $16,632.38 in 1913, and the cost per mile was $1.51 in 1914 against 1.37 in 1913.

Electric Light and Power

The year 1914 has again been an exceptionally busy one for the electrical branch. The following are some of the new works carried out departmentally during the year: Extension to Kuala Lumpur Station Hotel; Carriage Washing Shed, Kuala Lumpur; Lightning Arresters at Kuala Lumpur Station and Hotel; Nine Arc Lamps in Extension to Kuala Lumpur Station; Five European Quarters, Central Workshops; Lightning Arresters at Ipoh; Three Arc Lamps at Sungei Aur Wharf, Port Swettenham; Electric Light in Two Railway Launches at Woodlands-Johore Bahru. The electric plant at Central Workshops continues to give satisfaction. The current supplied by the Selangor Government electric lighting water-power plant at Gombak was again satisfactory. The total Board of Trade units recorded during the years 1913 and 1914 are as follows:

Stations.	1913.	1914.
Power received from Gombak	197,100	173,700
" generated by Central Workshops plant	19,042	5,375
Total ...	216,142	179,075

an increase of 135 H.P. and a decreased consumption of 37,067 B.T. units as compared with 1913, due to the shops working five days a week.

Three railway motor cars passed through the Central Workshops for general repairs, during the year compared with five in 1913. In addition to the above, five motor cars belonging to the Government officers passed through the shops for heavy and light repairs during the year as compared with six in 1913.

Details of expenditure on engines, carriages, wagons and running on revenue account but exclusive of steam boats, tongkangs, motor launch service, Pekan-Kuala Krau, ferry barge service and motor service show that the Locomotive Department spent $2,414,601.59 as compared with $2,255,888.44 in 1913, an increase of $158,713.15, or a percentage of 7.04 over the previous year. The cost per train mile was 71.09 cents as against 67.32 cents in 1913, an increase of 5.60 per cent. over the previous year, the proportion chargeable to sub-heads being as follows:

Sub-heads	1914 cts.	1913 cts.	1912 cts.	1911 cts.	1910 cts.
Engines.......	49.8	45.7	33.9	32.3	31.6
Carriages.....	11.6	11.3	9.1	8.0	8.8
Wagons.......	4.0	3.6	3.0	3.4	4.0
General.......	5.6	6.7	4.0	4.8	4.1
Total......	71.0	67.3	50.0	48.5	48.5

This is exclusive of a sum of $157,232.98 spent on special service, revenue account. If this sum is included the expenditure per train mile works out at 75.73 cents in 1914 against 81.53 cents in 1913, a decrease of 7.11 per cent in 1914.

Telegraph Department

The total mileage of railways wires is 2,499 miles 61 chains, an increase of 400 miles 45 chains on the previous year. Sixteen new telegraph offices were opened during the year, and three were disconnected, making the total number at the end of the year 163. Twenty-five telephones were erected and connected to the Railway exchanges at Kuala Lumpur and Ipoh. One hundred and twenty-six miles twenty-five chains of telegraph was constructed for the Post and Telegraph Department during the year, and 100 miles 40 chains were dismantled. The total mileage now stands at 2,454 miles 45 chains.

Fifty-five renewals of signal were made—being 27 distant signals; 19 platform signals and 9 gate signals. Twenty-three signals were shifted to fresh positions. A large number of wooden poles were supplanted by standard tubular poles. Nine frames complete with facing point locks and bars were fitted to various sidings.

The tablet instruments for the section Tampin-Gemas were received and installed, and the section opened to traffic on 7th June, 1914, a delay in the receipt of the instruments for the Gemas-Johore Babru section retarded the installation at these stations. The work, however, is now well in hand and the stations on this section should be opened early in 1915. Tablet working was brought into use on Tapah Road-Teluk Anson Wharf section in January. Tablet installation on Kedah section, Bukit Mertajam-Pinang Tunggal, was completed and brought into use in October. The installation on the Kelantan section was brought into use in November.

The total number of tablet failures during the year for the entire system are 185, due to the following causes:

Instrument defects, 20; Tablet jamming, 32; Batteries, 18; Bad earth connection, 1; Bad working by operating staff, 9; Line faults (caused by lightning, falling trees, fires, etc.), 105. Total, 185.

The electric block signalling in the neighbourhood of Kuala Lumpur and the signalling and interlocking throughout the system worked satisfactorily. The electric train tablet installation continues to give satisfaction. Fifteen additional stations and five signal cabins were fitted with these instruments. There were 185 failures due to various causes during the year. The signals throughout the Railway were overhauled and painted, and a large number of timber frames renewed.

Stores and Materials

During the year under review, stores and materials were purchased to the value of $4,480,526.42, of which $4,056,731.21 was paid through Crown Agents for the Colonies, being an increase of $1,649,525.02 over the year 1913. The value of stores and materials issued to the various departments amounted to $4,287,196.92, an increase of $1,766,493.84. The value of stores on hand on 31st December, 1914, was $938,731.91, an increase of $119,047.44. Indents to the number of 186 and of the estimated value of $2,255,949.76 were despatched to the Crown Agents, but owing to the war 19 of these and of an estimated value of $1,127,379.54 were subsequently cancelled. There were 242 indents of the estimated value of $4,635,903.59 despatched in 1913. The Stores Department executed 9.039 indents received from the different departments of the Railway as compared with 9,386 indents in 1913. There were 1,089 shipment of stores and materials received from the Crown Agents during the year amounting to 17,305 tons as compared with 919 consignments and 13,587 tons in 1913.

The purchase made during the year amounted to $1,273,895.15 and the sales to $1,086,950.26, the value of stock on hand on 31st December, 1914, was $938,731.97. During the year, stores and materials for Railway Construction were purchased to the value of $3,402,558.59; of which $2,433,940.38 was paid through the Crown Agents. The value of the stores in hand at the close of the year being $234,303.93. Indents to the number of 31 and estimated value of $459,383.66 were despatched to the Crown Agents.

During the year, 12,933,400 tickets were printed and issued to stations. The percentage of tickets to classes were as follows:

		per cent.
First class	337,775	2.61
Second „	1,524,400	11.79
Third „	11,014,675	85.16
Bicycle tickets	49,750	.39
Motor cycle	6,800	.05
	12,933,400	100.00

Construction Accounts

The total expenditure during the year 1914 on construction and surveys of new lines in the Federated Malay States amounted to $9,783,314.12 as compared with $7,405,686.04 during 1913, made up as follows:

	$
Semantan to Kuala Tembeling Railway	4,165.21
Padang Java to Kuala Selangor Railway	15,146.51
Through Main Line, Kuala Lumpur to Salak South, and Marshalling Sidings	90,604.62
Railway from Pudu to Ampang...	385,416.83
Kedah Railway Extension, Bukit Mertajam to Alor Star	2,531,366.16
East Coast Railway, Kelantan Section	2,096,063.01
East Coast Railway, Pahang Section	2,068,455.04
Doubling, Prai to Bukit Mertajam, and Alterations, Prai	711,833.65
Kuang to Batang Berjuntai Extension	1,243,500.16
Klang to Morib Railway	219,848.14
Bagan Serai to Kuala Krau Railway	142,761.50
Gemas to Malacca Railway	133,716.89
Ipoh to Kampar via Gopeng, etc...	4,501.43
Alor Star to Perlis Railway, etc.	40,779.65
Permanent Survey, Pahang-Kelantan Boundary to Kota Bharu	92,079.42
Bridge over Johore Straits	3,075.90
Total	$9,783,314.12

PHILIPPINE AUDITOR'S ECONOMIC ACCOUNTING

The report of Mr. C. H. French, Auditor to the Philippine Islands for the fiscal year 1914, is a document that can be recommended to the earnest consideration of every official who is charged with the expenditure of Government revenue as well as those who do the accounting for the same, such a radical departure is it from the ordinary financial report. It is safe to say that, sooner or later, every Government, whether monarchy or republic, will adopt a similar form of report if it desires to exercise its functions with intelligence and give a proper account of its stewardship to the people for whom it is popularly supposed all Government exists.

In his letter transmitting the report, Mr. French explains the reason for this radical change in accounting:

"This report reflects the result of certain radical changes which have been made in the accounting system during the past year with a view of presenting a more comprehensive statement of the cost of government, the general plan being not only to supply the Legislature with information essential to the proper exercise of the appropriating power, but also to present statistics which shall be intelligible to the taxpayers and helpful in promoting the efficiency of each organization unit. The system, which is still in its formative stage, will be extended to each province and municipality during the fiscal year 1915."

Former reports have dealt with the activities of the government and its subdivisions more as a whole, showing in detailed fashion the funds collected and the funds disbursed without troubling to segregate them into other than the ordinary headings of "Property Acquired," "Operating Expenses," etc. In the report under consideration, Mr. French has considered the government first as a unit under which heading he makes some suggestions as follows:—

"In the presentation of this report the Insular Government is first considered from the standpoint of its status as an organized unit. The essential facts relating to the acquisition, custodianship, and disposition of values by all departments, bureaus and offices of the Insular Government have accordingly been correlated.

Financial Condition of Government

"The Insular Government on December 31, 1914, had a total current surplus of P8,559,228.35, represented by unencumbered liquid assets and deferred charges. The amount of this surplus constituted the measure of the ability of the Government to meet future revenue deficits without recourse to loans or additional taxation.

"As shown by the general statement of revenue income, expense, and outlays, the revenue deficit for 1914 was P2,841,118.81, notwithstanding the fact that the net expenditures for 1914 were P5,657,603.85 less than for 1913. In anticipation of this condition, the Legislature, in December last, adopted temporary measures for an increase of revenue during 1915, but it is apparent that the situation demands a permanent rather than a temporary remedy.

"Under existing conditions there is an increasing tendency on the part of provinces and municipalities to look to the Insular Government for financial assistance. Expenditures of this nature have reached such proportions as to constitute one of the chief factors which contribute to the deficit for 1914. The consideration of measures whereby local governments shall become self-supporting is therefore of importance. In this connection the following statistics for 1914 are pertinent:

	Provinces and municipalities.	City of Manila.
Real estate tax collections	P2,699,416.46	P1,409,055.36
Cedula (poll tax) collections	3,648,523.50	209,736.00
Internal-revenue apportionment...	3,043,042.62	89,541.96
Geographical source of internal-revenue	2,971,320.80	9,561,773.96

"Generally speaking, the value of real estate varies according to density of population. It therefore follows that, under a system of uniform taxation, the relation which the poll tax bears to the real-estate tax should be reasonably uniform in all localities having the same political and social characteristics. The foregoing figures indicate an abnormal condition, in that the cedula tax in the provinces and municipalities greatly exceeds the real-estate tax, whereas in the city of Manila the real-estate tax is seven times greater than the cedula tax.

"Recent investigation has disclosed the fact that the 1914 real-estate assessment in the provinces and municipalities is approximately only three-eighths of 1 per cent of the value of the property subject to such tax. If said property were taxed at the comparatively low rate of 1½ per cent of its true value, the annual income of provinces and municipalities would be such as to make them financially independent. In this connection it is recommended that all real estate (exclusive of the public domain) owned by any branch of the Government be taxed in the same manner as real estate owned by individuals.

"Another matter which deserves attention is the method of apportioning internal-revenue income. In accordance with the provisions of existing law, that portion thereof which accrues to local governments is apportioned on the basis of population, the purpose being to distribute said income to localities in proportion to the volume of tax-producing goods consumed therein. The desired result, however, is not attained under the present system.

"The city of Manila produces approximately three-fourths of all goods subject to the internal-revenue tax. The per capita purchasing power in Manila, as indicated by the average daily wage, is more than double that of provinces and municipalities. Taking into consideration the further fact that cost of distribution operates to make the price of commodities lowest at place of production, it is evident that the per capita consumption of such goods in Manila must be far in excess of that in the provinces. As a matter of equity, the law should be amended in such manner as to provide for apportionment on the basis of per capita consumption.

PHILIPPINE EXPENDITURES FOR EXPENSE OF GOVERNMENTAL FUNCTIONS

	Amount.	Pct.	Amount.	Pct.
Total net expenditures fiscal year 1914			P24,200,015	100.0
Cost of revenue collection			1,012,401	4.2
General Administration.				
Executive direction and control	P 726,497	3.0		
Legislation...	723,352	3.0		
Adjudication	933,135	3.8		
			2,382,984	9.8
Protection Service.				
Law and order	P3,817,876	15.7		
Public Health	1,591,571	6.6		
Protection against forces majeures	171,605	0.7		
Suppression of animal diseases, etc....	415,957	1.7		
Sundry protective service	141,008	0.6		
			6,138,017	25.3
Social Improvement.				
Public education	P4,316,562	17.8		
Public correction	518,541	2.1		
Public charities	118,658	0.5		
Sundry social improvement	5,000	0.0		
			4,958,761	20.4
Economic Development.				
Conservation of natural resources	P 287,462	1.2		
Development of agriculture	596,156	2.5		
Development of industrial arts, etc.	126,448	0.5		
Development of commerce	1,205.374	5.0		
Philippine publicity	198,278	0.8		
Sundry economic development	98,514	5.4		
			2,512,232	10.4
Fixed charges			1,653,970	6.8
Construction and purchases			2,644,667	10.9
Aid to local governments			5,358,467	22.0
Prior year charges and credits			258,793	1.1
Extraordinary charges			5,130	0.0

"The foregoing recommendations contemplate the equitable distribution of that portion of the expense burden which is inherently local. The adoption thereof will operate to increase the annual income of local governments by approximately P10,000,000 and to decrease in a like amount the burden now imposed upon the Insular Government, thereby enabling the latter to continue its public-improvement policy without the necessity of increasing the bonded debt or levying additional indirect taxes.

Silver Certificate Fund

"In connection with the problem of financing the Insular Government, attention is invited to the fact that cash to the amount of P43,790,949.97 is held in the Treasury vaults for the purpose of meeting certain special and contingent obligations, among which are outstanding silver certificates amounting to P33,898,721.50. In view of the nature of this obligation the immediate cash requirements are negligible, and it is recommended that action be taken whereby the Government may derive a substantial income from this idle capital by means of time deposits in banking institutions.

"To facilitate the distribution of expense according to functions, it is recommended that future appropriations for maintenance, alteration, and repair of public buildings be included in the appropriation accounts of the various bureaus and offices occupying said buildings.

"It is further recommended that in the preparation of the annual budget the requirements of the Government for the succeeding year be presented in such form that they may be embodied in a single appropriation act. Under such arrangement, the appropriation for each bureau would carry not only the expense allotments as heretofore, but also the allotments for those fixed assets and public works over which said bureau is to exercise proprietary control."

Turning to the summary of expenditure for expense of Governmental functions, fixed charges, outlays and aids to local Governments, it is found that the total net expenditures for 1914 were 24,200,000. The cost of collection of the revenue which provided for these expenditures was slightly over one million pesos, or four and two tenths per cent of the total expenditure.

The general administration of the government cost P2,400,000 or almost ten per cent of the total expenditure. This was divided into three parts, the executive costing P725,000, legislation costing about as much, while the judiciary expenses were upwards of P900,000, in which the inferior courts figured to the extent of almost P700,000 as against P200,000 for the Supreme Court.

The protective service of the government cost almost six million pesos, the major portion of which, or P3,800,000, went for law and order under which heading the Philippine constabulary absorbed almost P3,600,000, the only other considerable expense being allotted to the Bureau of Justice which is charged with approximately P150,000.

Maintenance of law and order absorbed fifteen and seven tenths per cent of the total expenditures.

Public health is the second most important item of protective service and almost P1,600,000 were expended under this heading, of which the Philippine General Hospital, P345,000; the Bureau of Health, P991,000; the Quarantine service, 105,000; and the Bureau of Science, P69,000, are the most important sub-headings.

For protection against forces majeures, P172,000 was expended, practically of all which was absorbed by the Weather Bureau, whose timely warnings regarding typhoons probably saved many times that sum in sea borne property and human lives ashore, although it could not prevent the large property damage which results from the Philippine combination of flimsy houses and winds of high velocity, damage in money during the past month in the Philippines from two typhoons being estimated at upwards of five million pesos.

Owing to the absolute dependence of the agricultural laborer and small farmer upon the work animals of the Island, the ungainly carabao or water buffalo, the matter of controlling animal diseases becomes one of the most important protective measures the government can take, the last epidemic of rinderpest having reduced some districts of the Island to absolute want and beggary. Under this heading the Government expended almost P416,000 which is one and seven tenths per cent of the entire expenditure. Under Sundry Protective Service is classed the Board of Utility Commissioners, with expenditures of almost P73,000, and the customs of the Bureau of Customs which absorbed P59,000.

Helping the Head Hunter

Upwards of twenty one per cent of the total expenditures went for social improvement, Public Education taking P4,300,000; Public Correction, about P520,000; Public Charities, P118,000 while only P5,000 is credited to sundry social improvement. This last item contrasts most effectively the difference in results that have been attained by the American government in the Philippines and the Japanese government in Formosa, for the P5000 was spent in the suppression of Head hunting among the pagan tribes while Japanese in Formosa expended a hundred times that amount in the current year and are reported to have executed several hundred head hunters who took part in a recent uprising. As a matter of fact the P5,000 does not represent all the money expended by the Philippine government for the suppression of head hunters since every trail that is cut through the valleys of the mountain provinces, plays its part in the suppression of this form of murder which was a recognized institution among the mountain province people before the Americans came. At that time, every valley was at war against every other valley and no man in all the tribes was permitted to marry until he had proven his ability by taking at least one enemy head. When Dean C. Worcester, the then secretary of the interior, made his first visit to the mountain provinces in 1907, every household had its collection of gruesome trophies in the shape of human skulls. Naturally the first road building met with some opposition from the head hunters but the prosperity that followed in the wake of road construction converted the pagan and led him to see that his neighbor in the next valley was no enemy but a man similar to himself, whom he could sometimes beat in a bargain. Now it has come to pass that delegations from outlying divisions of the mountain provinces are continually besieging the government of that province with requests for foreign surveyors to map out a road for them which they in many cases built without cost to the Government. Despite the P5,000 spent as a protective measure against head hunting, the Mountain Province of the Philippine Islands is as safe if not safer for the traveller than some of the low lands, a fact which stands out in strong contrast to conditions in the neighboring island of Formosa, where the Japanese have surrounded the last remnants of the aborigines with a copper fence highly charged with electricity.

Educating the Filipino to Work

Reverting to the larger items of social improvement, the most important of which is Education, the Bureau of Education absorbed P3,600,000 while the University of the Philippine Islands cost P535,000, the bureau's expenditures being largely for primary schools and industrial education, since it is the policy of the Philippine school system to have every graduate able to earn his own living with his hands if need be.

Public correction also is treated under the head of Social Improvement and justly so since the great prison of the Philippine Islands, Bilibid, is more a compulsory school than a place of punishment, its 3,000 and more inmates receiving not only the rudiments of text book education but are made to learn some handicraft which will enable them to become honored and respected citizens after their term of imprisonment is over. Having been to Bilibid is considered no disgrace by the Filipino, and it is a common thing in the provinces when a carpenter shows familiarity with modern tools and methods of work to find that he is a graduate of this celebrated correctional institution. The amount expended for correction given above is the net sum as the revenues from the work of the prisoners amounted to P138,000 or close to sixteen percent of the cost of maintenance of the prison.

Anti-Tuberculosis Society

Among the items listed under Public Charities is an expenditure of P29,000 for the Anti-Tuberculosis Society which is endeavour-

ing to combat a disease which carries off several hundred thousand Filipinos every year, and while the average value of a man or woman of mature years of the Philippine Islands has not been worked out with any degree of exactitude, it would appear that this sum is pitifully inadequate in contrast with the work to be done, since the prevention of tuberculosis is largely a matter of instruction in hygiene and the isolation and cure of incipient cases. Under this same heading is an item of P13,000 which went for the protection of infants, since the Philippines in common with other tropical countries, shows an appalling death rate among children under five years of age, as the mortality reports usually average about 50 per cent of infants' deaths to the total deaths recorded. A commission appointed by the legislature, has recently made an exhaustive study of this problem, to which is due the almost stationary population of the Philippine Islands, with a view to lessening this infant death rate, chargeable it is believed in large measure to the ignorance of the mothers.

The charges under Economic Development aggregate P2,520,000 or a little over ten per-cent of the total expenditures, the chief among these is P250.000 for the development of commerce which includes expenditures for light houses P166,000; the Arrastre division of the Bureau of Customs, P168,000; the maintenance of port works and channels, P330,000; repairs to the Benguet road which was until recently the chief way of access into the mountain provinces, P50,000.

The conservation of natural resources has been the object of every Philippine administration and justly so since the policy of the United States has been the development of the Philippines for the Filipino, the Government considering that its mission is educational and has declared itself on many occasions in favor of self-government for the Filipino as soon as he is able to take care of himself. Under the heading of conservation, the largest item is for the Bureau of Forestry which absorbs P248,000 or practically the entire appropriation of P287,000.

This sum, it might be pointed out, should scarcely be charged as an expenditure since the revenue from the bureau's administration of Public Forests was almost P400,000, which if attained by a private concern would be considered quite a handsome return. Aside from this, there is another phase of the question of expense. The bureau of forestry each year adds several million pesos in value to the forests, especially those that are being worked, since logging operations are conducted under its direction by those holding concessions in such a manner that the forests will be much more valuable at the expiration of the twenty years lease which is the customary period, than they were when the concessionaires took hold. Philippine forests when turned over to lessees, usually contain a large percentage of over-ripe timber which if not immediately cut, soon will fall and bring destruction upon young trees that are potentially much more valuable. The additional assets added to the Philippine domain under this careful administration of the forests, will not come upon the books of the auditor for many years, when they may reach a sum that will be staggering and vindicate the policy of the forestry bureau which has been often times sharply criticised by the lessees who are compelled to work under its rules.

The Filipino as a farmer is notoriously backward and seldom works his land to the fullest possible extent nor does he show judgment in rotation of crops or in the application of fertilizers to make up for his impoverishment of the ground, so that the expenditure of 2.5 per cent of the total budget for the development of agriculture is an index of the forces at work that in the course of time should bring the Filipino land worker into a much more prosperous and efficient condition. Of the almost P600,000 that is charged against the development of agriculture, less than half, or P280,000, was allotted to the bureau of agriculture, although a further sum of P145,000 is devoted to agricultural experiment stations, so necessary to the development of the Philippines. The bureau of lands absorbed P160,000 for surveys, although the exact work performed with this appropriation is not definitely set forth with the auditor's schedule on the Bureau of Lands.

Less than one-half per cent of the government's expenditure was devoted to the development of industrial arts and the major portion of the P125,000 appropriated was allotted to the bureau of Science which has undertaken many valuable investigations for the development of Philippine resources and the supplying of them to the world in finished form rather than as raw material for further manufacture. The bureau of science in this connection, it may be said, has conducted many investigations of such far reaching nature that its publication of results should serve as a stimulus for many generations of future investors. While the experts of the bureau recognised as authorities in their fields, have found time to pursue many investigations into pure science, by far the greater portion of the bureau's appropriation is expended along lines of economic research, either for the extension of present industries or the creation of new ones. It is interesting to note in this connection that the worth of the bureau and the necessity for the continuance of its work has been recognised by the Philippine legislature, which has shown a disposition in late years to increase the appropriations for scientific research although the limited income of the government does not permit such a wide extension as the undeveloped state of the country's resources would seem to require.

Some years ago a fund of P50,000 was set apart by the Government for publication purposes and this was expended under the joint direction of the government and the Manila Merchant's Association which added a like sum making a total of P100,000 to be expended in advertising the Islands. The success of this appropriation which resulted in a large influx of capital and a still larger one of tourists led the legislature to provide liberally for the Panama Pacific Exposition, and although the year under discussion preceded the opening of the Exposition in 1915, the auditor's statement contains sums aggregating almost P200,000 expended in preparing for the exposition and listed under the heading of Philippine Publicity. Now that the exposition is almost a thing of the past and the immediate value for advertising purposes of participation therein has been demonstrated to the Philippine legislature in the shape of a choice assortment of gold, silver, bronze medals and the more intangible honorable mentions, it is expected that the original campaign of publicity will be resumed so as to follow up the favorable impressions of the Philippines, created by the superb exposition of governmental and other activities seen at San Francisco.

Under fixed charges the government expended P1,650,000, in interest on Friar lands bonds, P564,200; interest on public works bonds P403,000, public works bonds sinking fund P201,000, and interest on Philippine railway bonds P505,000, making the interest charges 6.8 per cent of the total government expenditure.

Buildings and materials acquired by the government during the year aggregated in value P2,650,000, almost 11 per cent of the entire expenditure, but during the same period adjustments in charges and sales of material and equipment brought in a revenue of slightly more than P2,000,000 and the profit from sales of equipment reached P31,000.

One of the larger items of expenditure was that of aid to local governments which absorbed 22% of the whole or considerably over P5,300,000. This item was a subject of a special recommendation in the report of the auditor by which plan the provincial governments will be made more nearly self supporting. The attitude of the Filipino now is that everything possible should be done by the government and as little as possible by himself. This socialistic conception of governmental functions has led the provincial governors to overlook possibilities of development of their territory from a revenue producing standpoint, since they have been able in the past to fall on the central government when in need of funds, whereas their proper position should be as a contributor and not as a borrower of government money.

While the above summary of the auditor's statement is confined almost entirely to expenditures in order to set forth the value of the new system of accounting that Auditor French has introduced, a brief summary of the general balance sheet of the Philippine Government may be of interest. The fixed assets of the government, including the public domain which is entered at the value of one peso, land, public works improvements, equipment, etc., less depreciation of almost P1,000,000 gives the total of P56,988,000. This item shows a decrease from the preceding year of more than P2,000,000. Deferred assets, being the accounts current of the Philippine Railway Company and the Manila Railroad Company, total P3,635,000. Sinking funds including accrued interest less overdrafts of cash total P5,567,000. Fiduciary assets in the shape of properties, interests, investments and cash total P15,000,000.

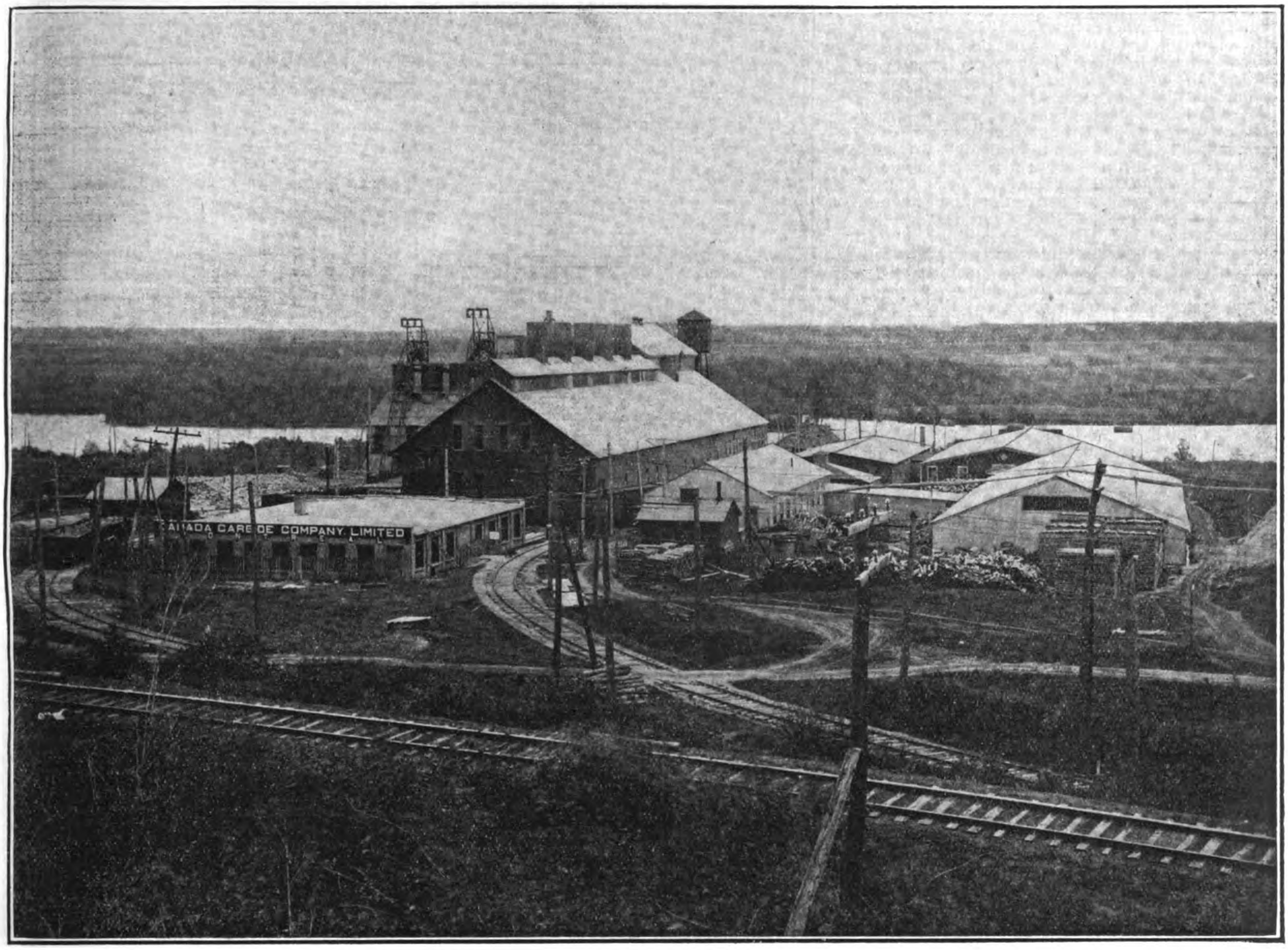
Special fund assets in which the largest item is P43,791.000 in cash total P52,679,000.

Other items of the general fund make the total assets of the government P157,536,000. Against this must be charged a bonded debt of P24,000,000, (less than three pesos per capita,) public and private trust funds P15,000,000; special and contingent liabilities such as silver certificate issue, gold standard obligations, insurance of property and land titles and the bonding of government employees, total P52,679,000. Current liabilities total almost P15,000,000 and the balance sheet works out to give the government a total net worth of P50,750.000, the total revenue surplus being P8,518,000.

Some items in the above summary of the general balance sheet are worthy of close examination, especially the cash item in the special fund assets, since the auditor is considering the government as a going concern whose business it is to make as much money as possible out of the property entrusted to its care, and to apply such profits to the benefit of the members of the company, the 8,000,000 Filipino people. Of the P43,790,000 held in cash, almost P34,000,000 is in silver pesos which have been coined to serve other purposes than to redeem the paper currency of the islands should the holder thereof desire coin rather than currency. This P33,000,000 is in actual existence and is buried in a hole in the ground on the island of Corregidor. For a government so poor as that of the Philippine Islands, which has scarcely P8,000,000 of liquid assets, to hold such an enormous sum for a contingency which is exceedingly remote, the theory being that the money must be actually on hand in case all of the inhabitants of the islands saddenly flock to the treasury and demand silver pesos for their peso notes, seems not only unnecessary but deprives the government of a revenue of several million pesos which it might receive were the money merely loaned, or placed in local banks on interest.

A much better outlet, however, is at hand in the agricultural bank, an institution which, in the few years it has been in existence, has fully justified itself by great services to the farmers of the Philippines and has enabled them to increase materially the amount of land under cultivation.

With this P33,000,000 or even 75% of it, leaving 25% of the money in actual cash to secure the issue of silver certificates, loaned to the agricultural bank, the result would be an immediate quickening of the economic pulse of the island. The influence of the outlay would be manifested not only in internal revenue collections but in a vastly increased volume of exports and as the Filipino lives closely up to his purchasing power the customs revenue from imports, should be materially enhanced. The addition of such a sum to the circulation medium of the islands would have a most beneficial effect upon business in general since the total amount in circulation is quite inadequate for the volume of business to be done.



CANADA CARBIDE COMPANY'S WORKS, SHAWINIGAN FALLS, QUE.

CARBIDE OF CALCIUM AND ITS USES

The uses to which Carbide of Calcium has been applied since its discovery, about fifteen years ago, have brought to the attention of the world another of the benefits handed down to the present generation as the result of scientific research.

Carbide of Calcium is usually known by the general public under the name of "Carbide," and for the sake of convenience is used under that term in this article.

Carbide is a metallurgical product formed by the smelting of Lime and Carbon in an Electric Furnace. In the process of smelting, these ingredients are reduced to a liquid condition, elements other than the calcium in the lime and carbon in the coal being driven off in the form of gases. The liquid remaining in the crucible is tapped out in much the some manner as iron from a blast furnace. Other elements of the lime and coal having been driven off in the form of gas, there remains carbon and calcium, which is what the name of the product signifies. This material is described chemically as CaC_2.

After the carbide has been drawn from the furnaces and allowed to cool, it is in large blocks of from one to two tons in a solid lump. The carbide then has to be broken up and screened to suit the different styles of generators and uses for which it is to be used.

The growth of this industry during the last fifteen years has been very rapid owing to the various uses to which it has been applied with great advantage. According to statistics published, there are consumed at the present time about five hundred thousand (500,000) tons of carbide per year.

When carbide was first manufactured, it was discovered that by bringing it into contact with water an Hydrocarbon Gas was given off, and when igniting the gas it burned with a dark yellow, smoky flame, which indicated an excess of carbon given off in the form of soot.

In attempting to use the Gas in an ordinary gas burner, the light was unsatisfactory on account of this excess of carbon in the gas not having mixed with it a sufficient quantity of air to cause a complete combustion, and therefore not utilizing all the carbon. Large amounts of money were offered, in the way of prizes, to the party who would discover a way of using this gas as a lighting medium. Geo. Bray & Company, well known throughout the world as manufacturers of gas burners, were among the first to solve the problem and to discover a burner which accomplished this purpose, the burner being made in such a way as to mix large quantities of air with the gas. It was found by diluting the gas in this way that it gave a beautiful white light, and is to-day used the world over in rural districts for house lighting. This style of burner has been improved on by Mr. Naphy, as well as other makers, since the original was brought into practical use. However, the principle remains the same and is in the form of a two-flame burner, made in such a way as to have the flame meet about one-half inch above the burner, so that when the gas is ignited the flame shows flat.

On account of this gas being so rich in carbon, only a very small quantity is required in order to give sufficient light for an ordinary room. In house lighting one-half (½′) foot of gas per hour will give a 24 c.p. light. Also the quantity of light can be increased or diminished in proportion to the amount of gas used. This, compared with ordinary city coal gas, which gives about three to four candle power per foot per hour, will give the reader some idea as to the comparative quality of Acetylene for lighting purposes, compared with ordinary city gas.

The gas obtained by bringing water into contact with carbide is chemically described as C_2H_2 and known the world over to-day as "Acetylene." Acetylene properly mixed with air gives, practically speaking, a pure, white light, and is credited by scientific men as being the nearest to the colour of sunlight of any artificial light known at the present time.

This is found to be of great advantage in rular districts where no artificial light except the old-fashioned tallow candles or coal oil is to be obtained. In such places as country stores, the proprietor may own his own gas plant and light his store with more independence and convenience than can a man in the large cities who is depending on monopolies for supplies. In addition to being able to get a convenience of this kind at a very moderate price, he also has the advantage of being able to show his goods to better advantage than can a man in the large cities. For instance—delicate shades of yellow, green, blue, and orange can be matched under Acetylene, where it cannot be done satisfactorily under electric light, for the reason that the light rays of the Acetylene are so nearly the same as the sun's rays that these delicate shades are reflected in their true colours.

After a satisfactory burner was made perfect for using Acetylene, the attention of the inventive public was then turned to the manufacture of Acetylene generators or machines that would automatically bring water and carbide together in the proper quantities and under proper conditions to generate gas as it was required. There are many styles of generators, but briefly they may be grouped under three headings:

1st. By the displacement or pressure regulation, which allows the water to come into contact with the carbide at the bottom side. As the gas is given off the pressure drives the water back until such time as the gas is released through the service pipe. When the gas is sufficiently released the water touches the carbide and makes more gas, and thus a repetition of this process furnishes steady supplies.

2nd. The water-to-carbide process, usually accomplished by placing a quantity of carbide in a receptacle, sprinkling the water on the carbide in such quantities as is necessary to make the required amount of gas. Such generators are usually made with a small gasometer attached. A valve regulating the amount of water to be sprinkled on the carbide is attached to the gasometer, so that the rising and lowering of the gasometer automatically turns the water on and off. In this way as long as the generators are kept properly supplied with carbide and water, the automatic process goes on and gas is supplied.

3rd. The third process and the one most commonly used in North America is the process of carbide-to-water. These generators are made having a hopper to hold the carbide in the top of the generator. The water is placed in the bottom of the generator and small quantites of carbide drop into the water to make gas and fill the gasometer, which gasometer is again attached to the valve regulating the flow of carbide, and automatically allows enough carbide to drop into the water to keep the gasometer supplied with the amount of gas for the service it is intended to perform.

In order to have a building lighted by acetylene it is first necessary to obtain a generator and have the house piped with the same style of piping as is used for coal gas. A house which may have been piped for coal gas may be used for acetylene except acetylene burners require to be put on instead of the ordinary gas burner tips. Within the last year there have been placed upon the market automatic lighters, so that the gas can be lighted by pressing a button or by simply turning the gas cock, which makes the use of acetylene in the rural districts as convenient as electric light in the large cities. This automatic lighter is arranged by a small storage battery in the house, connected by wire to the burner in such a way as to draw a spark at the moment the gas is turned on. In this way the housewife has but to press a button and the light is turned on. This is not only a great convenience but a safeguard against fire, and it does not require having matches about the house at convenient places where children can play with them. It is also a safeguard in that the gas jets are out of the children's reach so that they may be left to play alone in a room without any danger of upsetting a lamp and causing a fire.

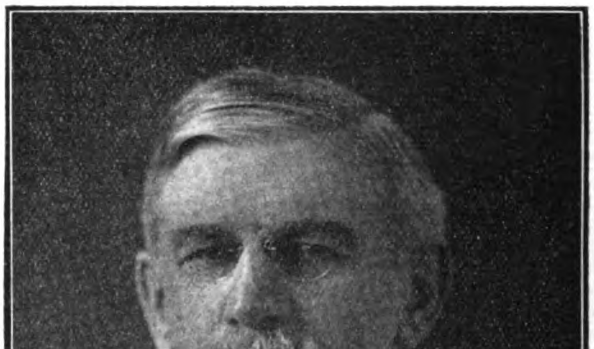
Canadian Northern Railway Coach Lighted by Acetylene

Science has been making great advances during the last few years, but in no way has this been practically demonstrated more than by use of sunlight and well ventilated rooms. Good lighting means a cheerful home, as well as a saving of eye strain, necessitating the use of glasses, altogether too common at the present time. Much of the eye strain, necessitating the use of eye glasses in the present day, can be traced back to the time when children and young people were forced to study their lessons by the light of the fire-place, or by a smoky lamp, which irritated the eye, causing extra strain, overwork and in many cases other physical derangements on account of not having a proper light with which to study their lessons. This practice is not so common in the larger cities at the present time as it was in the rural districts a few years ago, when a scholar was always given a number of lessons to study during the evening—the theory being at that time, that as he had very little else to do in the quiet rural home, his attention might better be occupied with lessons than be idle. This theory to some extent was true, but it has been the means of weakening the eyes of the present generation.

Thousands of Canadian homes in the rural districts to-day are enjoying a better light for their children to study their lessons with than are the homes in the larger cities.

Soon after acetylene became popular as a lighting medium, it was often found convenient when installing a generator, to put in one considerably larger than was required to light the building it was placed in, and to run a pipe from this building to a neighboring building, which would be lighted from the same generator. This principle, within a few years, had evolved into what is commonly called now the "town plant" business.

There are many towns to-day, in Canada, lighted by acetylene on much the same principle as coal gas is supplied in large cities. Instead of placing one generator in each house, for the convenience of each customer, a large generator is built on the outskirts of the town, pipes are laid along the streets, and the gas is supplied to the residents along these streets on the metric basis, on the same principle as ordinary city gas. This system of distributing the gas not only minimises the amount of work to care for the generators, but also the expense is lower in proportion than where a generator is installed in each house.



D. M. McTavish—Vice-President and General Manager Canada Carbide Co. Limited

This system of lighting is very popular in towns of from five hundred to two thousand population. It is significant that with an acetylene town plant, the plant can be built to serve ten families, twenty families, or one hundred families, at a proportionate expense according to the size of the town and the amount of gas required. This form of lighting is especially popular west of Winnipeg where water powers are unknown and coal for fuel is expensive.

It is worthy of mention that with a gas plant, the gas is available for light or fuel at all hours of the day and night, where, in many cases, with other forms of lighting, especially with electric lighting, in a small plant, the light is only available at certain hours, usually until midnight, in which case the residents require to keep up some other form of artificial lighting in order to substitute in case light is required during the hours the electric plant is closed down.

For the first few years after the discovery of Carbide, Acetylene was used almost exclusively for house lighting. A little later this light was used for other purposes, and to-day we find it being used for lighting summer cottages, railway coaches, motor cars, bicycles, yachts, marine buoys, by contractors as flare lights, and thousands of miners are using it for underground work. In addition to this large quantities of Carbide are consumed annually for Oxy-Acetylene welding and cutting purposes. By the proper mixture of Acetylene and Oxygen under proper pressure, a very high temperature can be obtained —under favorable conditions from 6,000° to 6,300° Fahr. All this can be obtained under very unexpected surroundings. A small tank is used in which acetylene is put under pressure—a separate tank is used in which oxygen is put under pressure, tubes leading from each of these tanks unite in a torch or blowpipe where the acetylene and oxygen are properly mixed. This mixture when ignited produces an extremely high temperature, quite sufficient to melt any ordinary metal without any difficulty. This style of apparatus is portable and is used on the top of bridges or buildings, for cutting off large beams; on railway trains and steamboats, in case of accident, for cutting off axles or beams, or a hole through the side of a boat.

The welding process requires an operator who understands metals well enough so that he does not burn the metal, but brings it to a temperature sufficiently high for the metal to fuse, then allows it to cool. In this way the metal may be increased in volume so that the particular part welded will be stronger than the surrounding parts, on account of not only having welded the metal, but having added more metal makes the renewed part stronger than the parts immediately surrounding.

Acetylene is also being used in summer cottages for cooking—while it is more expensive than wood or coal, the convenience of Acetylene has been recognised, and with the latest improved stoves, light cooking can be done economically by acetylene.

In many of the small towns west of Winnipeg where anthracite coal is expensive, acetylene is used for light cooking, such as five o'clock teas, breakfasts, etc., as it has been found a great economiser of time, as the kettle can be boiled in much less time than a fire can be raised to necessary temperature for boiling water. In addition to this, immediately the cooking is completed the gas is turned off and all expense stopped.

Canadian Carbide is made from the best materials by Canadian workmen, and has attained a favorable reputation not only in Canada, but in the export markets, large quantities of Canadian Carbide being used in South America, South Africa, Australia, New Zealand, West India Islands, and on the Continent of Europe.

The Canada Carbide Company, Limited, about three years ago purchased the patents and works then operated by Mr. T. L. Willson, therefore the carbide being made by this Company is a continuation (with improvements) of the process evolved by the original discoverer. Their works are located at Merritton, Ont., and Shawinigan Falls, Que., the works at Merritton, Ont., being the first carbide works in Canada.

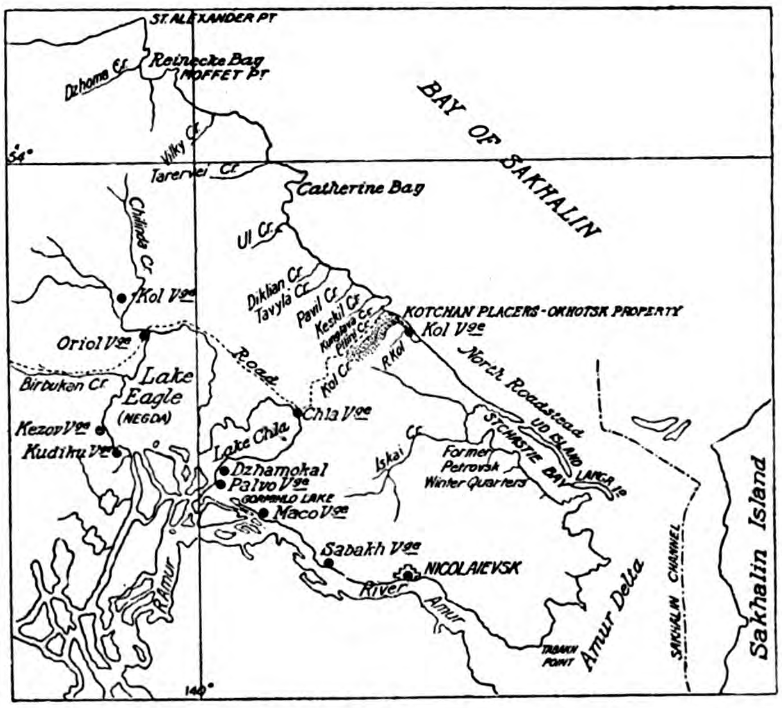
GOLD MINING IN THE AMUR REGION

Gold mining in the central Siberian area of Russia, particularly in the Amur territory, is at present the subject of considerable interest according to reports from Petrograd. The old question has been raised of ways of communication in the districts where the gold deposits exist. In the Zei district, including seven mining areas—the Zei, Aldan, Timpton, Unyin, Sugdzhar, Gilyuisk, and Mogotsky—which embrace an area of 200,000 square versts (1 verst=⅔ mile) with an annual production of 400 poods (about 210,000 oz.) of gold, transport has always been difficult. Notwithstanding the energetic measures of the regional authorities and of the companies who joined them to have new roads made, and the old ones improved in the Zei district, only two roads are now available; these are only 156 miles long.

On account of the lack of roads in the gold-mining districts, a number of them have not been exploited properly. This refers more to the outlying districts; for example, in the areas of the rivers Aldan, Timpton, and Unyin, and others, there is a large number of properties containing rich gravel that are not being exploited because of the impossibility of delivering supplies, etc. Where there are wagon-roads, such as at Zei and Mogot, etc., it has been found profitable to exploit areas with half the content of gold in the above-mentioned areas. Wages are 5 rubles ($2.50) per day with keep, while in the districts away from the roads the wage never exceeds $1.25.

The question of a part permission to engage Koreans and Chinese workmen at the mines, with less formality respecting passports, and their verification, is being discussed. Zeyu-Pristan, the centre of the Amur gold industry, was visited by the Priamur Governor-General Gondatti, and he decided to construct some wheel-roads in the gold-mining regions. For this purpose he was granted a credit of $1,500,000. Besides this, by his instructions, work on the main road between Zei and Tygda has been started, and the cost to be allowed is $132,500. Among other things, the Amur companies called the attention of the Governor-General to the fact that recently there has been observed an export of gold abroad without the certificate of the Russian authorities. On this account a special council of the companies was called and they decided to apply for the publication in legal form of the special prohibitory paragraphs in the mining law, in virtue of which workmen and employees on the mine have no right to keep gold, and are obliged to deliver it to the mine offices where it has to be entered in a special register.

The question has been raised concerning gold dredging along the rivers of the Amur basin. It is considered that dredging in this area has good possibilities. Peasants in the Priamur district have for years made good profits by washing the river sands.



PART OF THE AMUR REGION, SIBERIA.

As usual the Permanent Consulting Board of Gold and Platinum Producers in Russia has collected data obtained in response to question-sheets sent out to the various gold-producing districts of the country, including Siberia, in which dredges are used. The present report, as can easily be understood, has been greatly delayed—it is for 1913—on account of the disturbance to the social organism caused by the War. The number of firms that have responded to the call for details is 16; these among them controlled 55 dredges: thus the report deals with three dredges more than did the report for 1912. But the report, as usual, is not complete. Full details are given for only 48 dredges—an increase of six compared with 1912, showing that the attentions of the Consulting Board are becoming more appreciated.

The companies that have supplied details are: The Bogoslovsk Gold Co., the Borovin Gold Co., the Verch-Isset Mining Co., the Zauralsk Mining Co., the Novo-Udylsk Gold Co., the Olekminsk Gold Co., the Putiloff Factories, A. A. Sovvinik successors, the Teptyarsk Gold Co., the Central Siberian, and Y. K. Yuskoff.

The total gold and platinum in 1913 for 48 dredges of which complete details were received was 110,348 oz. The general efficiency per dredge is expressed in the gold and platinum produced in the different years, 2298 oz. per dredge in the year 1913 against 2096 oz. in 1912; 2021 oz. in 1911; 1792 oz. in 1910; and 1811 oz. in 1909. But an increase per unit of dredge in gold and platinum production does not necessarily

mean that the operations have been more efficiently conducted. The increase is largely due to the use of better and larger dredges. Yet the workmen naturally acquire more skill in operating, and probably also a more enthusiastic interest in the work. Thus though the production per dredge in 1913 was well in excess of that of 1912, the number of hours worked was appreciably less, being 3302 in 1913 against 3437 in 1912, which, of course, indicates a more efficient organization.

The quantity of gravel raised per dredge in 1913 was 247,687 cubic yards against 213,438 cu. yd. in 1912. The total production of gold and platinum by dredges in 1913 was larger in 1912 by 26,333 oz., an advance of 19.8%. This, in view of the fact that complaints are common respecting stagnation in the gold industry of the country, and the difficulty of stimulating to a larger production, shows that the Russian gold-producer, whether on his own initiative or under the pressure of Western European partners, is tending to employ large-scale methods of production that experience has proved worth-while, particularly as lack of success in the past has been ascribed to the petty methods employed.

Capacity of the dredges: four dredges produced up to 527 oz. of gold and platinum; two from 527 oz. to 790 oz.; three from 790 oz. to 1053 oz.; nine from 1053 oz. to 1317 oz.; six from 1580 oz. to 1843 oz.; seven from 1843 oz. to 2107 oz.; three from 2107 oz. to 2370 oz.; four from 2370 oz. to 2633 oz.; six from 2633 oz. to 2897 oz.; two from 2897 oz. to 3160 oz.; and two from 3160 oz. to 3423 oz. Eight dredges produced respectively quantities exceeding 3423 oz., rising to over 5260 oz., over 8952 oz. and over 1000 oz. for the three last in the series.

The first gold dredge to go to work in the Amur region is the one operated by the Amur Gold Mining Co. It is on the Kharga, a stream that empties into the river Selemdja, a tributary of the Zeya, which, in turn, feeds the great Amur River, the confluence being the town of Blagovestchensk, the residence of the Governor of the Amur territory and the point of export for the gold of Eastern Asiatic Russia.

This region is characterized by ancient sedimentary strata and old intrusive igneous masses, the predominant rocks being micaceous and hornblendic gneisses. Owing to the excessively wet climate of the country, oxidation has penetrated deeply, especially where the river Zeya with its tributaries has cut through these gneissoid masses and distributed the products of erosion as gravel in the river-beds. The greater part of these rich placers has been worked by natives with the crudest methods, but much of the gravel has not been touched as yet. The fragmentary reports of the Amur Gold Mining Co. show, however, what can be done in this region by dredging.

The dredge was purchased from the Werf Conrad Company at Haarlem, in Holland; the capacity of the bucket is 5 cubic feet. The steel pontoon, and all the requirements for the dredge, weighing altogether 505 tons, cost $55,000, including transportation to Blagovestchensk, Eastern Siberia. The machinery was then carried, in the summer of 1913, by steamers on the Zeya to the Norsk factory; then, in winter, from this factory, it was carried on sleighs, along the frozen surface of the Selemdja River, for about 245 miles, to the Zlatuostovsky placer, on the Kharga, at a further cost of $35,000. The various items of expenditure were:

Cost of plant delivered at Blagovestchensk	$55,000
Transport thence to the dredging ground	35,000
Putting the parts of the dredge together in place	10,50c
Equipment of the machine-shop ...	6,000
Building of the new settlement ...	9,000
Total cost of the dredge and buildings	$115,500

The erection of the dredge was started on January 25 and was finished on the last day of May, 1914. Actual dredging started on June 15 and finished on October 15, 1914. During all this time work of dredging proceeded in the bed of the stream and partly along the rims of the same. The following figures show what was done.

Working days	104
Days lost on account of the high water, breakages, etc.	27
Total working hours	2,498
Cubic yardage treated	158,521
Daily average yardage	1,500
Average dredging time daily ...	19 hr. 49 min.
Average value per cu. yd. ...	75c.
Ounces of gold recovered ...	7,554
Value of gold recovered... ...	$120,199
One ounce of gold in Russia is worth	$15.90

To the cost of the dredge should be added the sum of about $22,000 for maintenance during the winter, also fuel, and different repairs preparatory to starting on the second annual campaign, in the spring of 1915.

The grand total cost, therefore is ...	$137,000
The total gold recovery is	120,199
Showing a loss of	$16,801

The dredge is in operation this summer and naturally will work to better profit than in the preceding year, as there will be no more of the first high costs of purchase and equipment. The dredge is of the New Zealand type.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Kiukiang RailroadConstruction.—According to a British Consular report on the Nan-Hsun Railway for some years past the reports of the work done have been of such a disappointing nature that there is some satisfaction in stating that passengers are now, at any rate, able to travel from Kiukiang to a point about 1 mile from the river bank on the opposite side to the city of Nanchang. Lacking a bridge at Tukiapu, passengers have to change trains and cross the river in boats. This bridge at Tukiapu, which, owing to the width of the river in flood time, will be a difficult and expensive undertaking, may not be finished until next year. The new station at Teianhsien, with a fine building and long and wide platform, has recently been opened. The track between Teianhsien and Tukiapu is now said to be in good condition, but the reverse would appear to be the case with the track between Nanchang and Tukiapu as the couplings of the carriages frequently become disconnected. On the opening of the line the return journey, a distance of about 30 miles, occupied seven hours.

The piers of the new bridge at Teianhsien are being gradually erected. The bridge at Lianglukin is said to be ready for the iron girders. Two passenger trains are running daily each way between Kiukiang and Teianhsien, and a train daily each way between Teianhsien and Tukiapu, in connection with the daily train from Nanchang to the river opposite Tukiapu. This train consists of a locomotive and two carriages which were brought from Kiukiang to Tukiapu in sections, conveyed across the river, and put together on the Nanchang side. The total length of the line is about 87 miles, and the gauge is the standard gauge of 4 feet 8½ inches.

The Japanese, by virtue of two loans which they have made to the railway company, have a strong financial interest in the line. The first loan was for $7,000,000 and the second loan, of which $2,000,000 has not yet been advanced, was for $5,000,000 with interest at 7 per cent. The bank concerned is the Kiukiang branch of the Bank of Taiwan, Limited. The construction of the line is being carried on under the supervision of Japanese engineers, and it is reported that a Japanese has been appointed manager of the line and will shortly take up his duties.

Nanking-Hunan Railway.—Surveying has commenced from the Kiangsi end in connection with this important line, which is to connect Nanking with Nanchang, and is to pass through Pingsiang, into Hunan. The line, the construction of which is in British hands, will traverse an extremely rich portion of China, and should, incidentally, assist in making the Shanghai-Nanking Railway a paying concern. It should also help greatly in developing the provinces of Anhwei and Kiangsi.

Lung-Chin-Yu Hai Railway.—Despite lack of funds due to the stoppage of the Belgian Loan on account of the outbreak of the European war, after one year's labour Director Sze Shao-tseng has completed the construction of the Eastern Section from Hsuchow to Pienlo and a portion of the Western Section consisting of more than 1,000 *li*. The Ministry of Communications in acknowledging the excellent work of the director and his subordinates, has recommended 26 of them to the President for promotion and rewards for their services. This Railway line traverses four provinces, and the loan was contracted from the Belgians for its construction in the ninth month of the first year of the Chinese Republic. After his appointment as Director of this line, Mr. Sze drew up plans to hasten the construction, and remarkable progress was made. During the rebellion, the officers of this line at their headquarters at Hsuchow, despite the great disturbances which occurred, continued their work as usual, and more than half of the construction work was finished when the war broke out.

Change Terminus of Line.—The gentry of Kiukiang have requested the Ministry of Communications that the Pukow-Shengyang Railway line be changed into the Pukow Kuachow line in order to develop commerce. The request has been granted by the Ministry. The funds necessary for the construction of the line have been estimated at Tls. 1,600,000 and more than Tls. 700,000 have been already raised by the gentry. Construction work will be begun in the spring.

U. S. Cars for Kwangtung-Yueh-Han Line.—Although the cars in use on the Kwangtung-Yueh-Han Railway are of many kinds, the passenger cars being mostly of American manufacture, as are also the box cars, although some of the latter are of

English construction, it seems likely that the short English cars will soon be rejected, and that only the 8-wheel American cars of all classes will be used. Some steelwork, such as tanks, turntables, warehouses, etc., has been imported from America, and much Oregon pine for false work, ties, etc., has been and is being purchased there, but these articles are usually placed by Japanese, German, or English firms, for the reason that the American manufacturers are not adequately represented at Canton. The locomotives in operation are products of the Baldwin and the American Locomotive companies. Last year five consolidated locomotives were purchased—three from the American Locomotive Company and two from the Baldwin. The construction of the line now finished is fair quality. Eighty-five pound rails of American, Belgian, and Hankow manufacture are used on the main line. The steel girders and trusses are nearly all from the American Bridge Company.

The railway is at present almost completed as far as Shinkuan, 140 miles from Canton. Work on the last twenty miles has been greatly delayed on account of heavy rock cuts, and tunnels. Beyond Shikuan station three miles of grading, piers for the bridge over the North River (Erst Fork) at Shiukuan, and part of a long tunnel about 12 miles beyond Shiukuan are completed. The country between Shiukuan and Lokcheong, 170 miles from Canton, is rough and expensive to build upon. Beyond Lokcheong the line runs through very rugged country, will prove expensive to construct, and will have no local traffic until Pingshek, on the Hunan border, is reached. The passenger traffic represents about 60 per cent, the remainder bring transportation of cattle, firewood, limestone, rice, tobacco, and poultry. Later anthracite coal will be carried. Salt is sent over the line from Hunan and the upper North River districts. The traffic is satisfactory, and a large increase is expected when the line reaches Shiukuan. When the line has been completed to Hankow, it should be the most profitable in China.

Japan's Railway Estimates.—The estimates of the Imperial Government Railways for the next fiscal year have been put at Y131,581,500 in the revenue and Y114,035,200 in the expenditure. Out of the balance of Y17,546,300 for net profit, Y500,000 is to be laid aside as reserve fund and the remaining sum is to be appropriated for the construction and improvement of the railway lines, together with sundry receipts Y953,700 and Y30,000,000 to be transferred from the general accounts.

Altai-Siberian Line.—The construction of the Altai Railway is now completed and the line will shortly be opened to traffic. The new railway will connect Novonikolaievsk on the trans-Siberian with Semipalatinsk in the Steppes Provinces, passing through Barnaul, in the Tomsk Government of Siberia, which will be the headquarters. This railroad, 500 miles in length, will serve the richest agricultural and mineral regions of Siberia. The Altai region has deposits of gold, silver, lead, zinc, and copper, which were worked in the eighteenth and nineteenth centuries, but afterwards abandoned owing to lack of transportation facilities and other causes. It contains also the exceedingly rich Kuznetz coal basin, 6,000 square miles in extent.

Liaotung Light Rail Lines.—The Liaotung Light Rail Line Co., Ltd., has been awarded a franchise and an annual grant of Y7,000 for five years. The new company is capitalized at Y100,000 wholly paid up. The first line to be constructed is one 26 miles long between Pulantien and Pitsuwo. The second line will connect Pitsuwo and Piluho, about 15 miles, and the third line will run from Port Arthur to Shuangtouwan, about 8 miles. The shares have all been subscribed by the promoters. Surveying will start at once, and construction work will be begun on the return of spring. Before the construction of the second line, the Company's capital will be increased.

South Manchuria Ry. Needs.—Estimates of S. M. R. Co. for the next fiscal year, according Mr. K. Tsukuda, Director, are not exactly known, but the aggregate estimates of capital expenditures are expected to reach about Y10,000,000. The Directorate is prepared to pass only such fresh enterprises as are considered absolutely necessary. The Fushun Collieries alone want something between Y3,000,000 and Y4,000,000, which can be hardly called excessive when the reorganization of the subterranean installations and the improvement of mining operations are taken into reckoning. The commencement of the reconstruction work of the Dairen Railway Hospital on its new site will want Y300,000.

To Link Siam and Malay States.—The British Minister at Bangkok, writing in regard to the proposed linking-up of the Siamese Southern Railway with the Federated Malay States system states that Kampong Rantan Panjang has been fixed upon as the place at which the two systems will be connected, the new survey of the Siamese line to the Kelantan boundary having been completed, while the Federated Malay States Railways Administration has completed its line to the Golok River, the frontier between Siam and Kelantan.

New Indian Railways.—The Indian Railway Board has sanctioned the construction of a branch line of railway on the 2' 6" gauge from Futwah, a station on the East Indian Railway, to Islampur about 27 miles; the extension of the Mayurbhanj State Railway, 2' 6" gauge from Baripada to Talband, a distance of about 39 miles. A detailed survey is being carried out for a line of railway, 2' 6" gauge for an extension from Modassa to Meghraj, 13 miles.

Ceylon Starts Survey.—The Survey of the trace for the extension of the Ceylon Government Railway from Chilaw to Puttalam, which has been sanctioned by the Secretary of State, will be started immediately, funds for the purpose having been provided in the estimates for the new financial year. Mr. D. G. Heslon, Assistant Engineer, Railway Extension Department, who is at present in charge of the duplication of the main line from Ragama upwards, will be appointed to carry on the work and his place will be taken by Mr. W. J. Shelley, at present in Mannar.

Bahmo-Tengyueh Railway.—In a report on the Consular district of Tengyueh the British Acting Consul remarks upon the imperative need for increased commercial facilities between Burmah and Western Yunnan by the construction of a line of railway between Bhamo and Tengyueh. Eighteen years have elapsed since the agreement between the United Kingdom and China, modifying the Burmah Convention of 1897, was signed. By that agreement the following addition was made to Article XII, of the original Convention:—"The Chinese Government agrees hereafter to consider whether the conditions of trade justify the construction of railways in Yunnan, and, in the event of their construction, agrees to connect them with the Burmah lines." The Chinese Government have demonstrated long since by their official acts their readiness to carry out the first half of this undertaking, and it has also long since been recognized as an undoubted fact that in Western Yunnan—the portion of the province, that is, which more nearly concerns the United Kingdom, in that the territory of Burmah marches therewith for many hundreds of miles—the conditions of trade fully justify the construction of railways. More routes than one have been planned and carefully surveyed for a line connecting important trade centres in Western Yunnan with Burmah, and the general consensus of expert opinion favours the route followed by the existing main thoroughfare for traffic, namely, from Bhamo to Tengyueh. Whether the extension, also projected, of such a line over the 160 miles of very difficult mountain region separating Tengyueh from Talifu would prove remunerative for many years is open to doubt, but local Chinese traders are practically unanimous in supporting the various foreign experts who state that the construction of a railway over the 124 miles between Bhamo and Tengyueh would prove a thoroughly paying concern very soon after its completion.

At present, freight rates in force over the railway line in the southeast of the province, from Indo-China to Yunnanfu,—constructed by French engineers in face of great difficulties and opened to traffic on April 1, 1910—are still so high that Tengyueh merchants are able to lay down cotton yarn, despite heavy charges for mule hire over the 32 days' journey by road from Bhamo, in Yunnanfu at a price which competes with the same article by rail direct from the sea.

Shanghai Tramways.—The following is the traffic return of the Shanghai Tramways (Foreign Settlement) for November, 1915, and for eleven months ended November 30, 1915, with figures for the corresponding periods last year:—

	November, 1915.	November, 1914.
Gross receipts	$118,386.48	$108,202.86
Loss by currency depreciation	31,916.74	29,445.90
Effective receipts ...	$86,459.74	378,756.96
Percentage loss by currency depreciation	28.64	28.98
Car miles	276,490	264,870
Passengers	5,271,639	4,883,919
	11 months to November 30, 1915	11 months to November 30, 1914
Gross Receipts...	$1,220,452.81	$1,188,687.55
Loss by currency depreciation	328,772.24 Mex.	288,721.08 Mex.
Effective Receipts ...	$891,680.57	$899,966.47
Percentage of loss by currency depreciation	28.65	25.80
Car miles	3,039,115	3,018,225
Passengers	54,086,176	51,075,653

The tram company is one of the few concerns that drew a profit from the ricsha strike. The week ending December 1 saw 1,225,623 passengers carried, and much of the 265,288 increase was due to the ricsha trouble.

Ssupingkai Line.—Mr. M. Odagiri, Director of the Yokohama Specie Bank, gave the following account of the Ssupingkai-Chengchiatun Railway negotiations to a Dairen newspaper reporter, during his recent visit there:

The negotiations *re* the Ssupingkai-Chengchiatun Railway Loan Agreement were opened early last July and were brought to a successful conclusion in the latter part of November. Altogether twenty-three formal meetings took place in the intervening period in addition to many more unofficial interviews. The progress of the negotiations was submitted to H.E. President Yuan on the night of the 15th inst. The Presidential sanction was given on the morning of the following day. On the ensuing day, the 17th inst., the representatives of both parties signed the Loan Agreement. The Loan Agreement consists of 26 articles, appended with a supplementary agreement composed of 8 articles. There are besides 18 written notes exchanged mutually. None of their texts are yet ready for publicity. All that I may say is that the amount of the Loan is G. Y5,000,000 (not S. Y 5,000,000) with 5 per cent. interest and secured with the railway itself and receipts. The Loan is to be floated in Japan. In case of the financial condition of Japan being found not quite so responsive as hoped for, Taels 3,400,000, the amount set aside

for the construction work, is to be furnished by the Yokohama Specie Bank.

As regards the appointment of the railway officials, sundry erroneous reports appeared in the newspapers in Japan, which reports caused needless misunderstandings to the Chinese authorities whilst the negotiations were still in progress. The Ssupingkai-Chengchiatun Railway Section having a length of only 52 miles, it was agreed upon that it should be presided over by a director who is to be a Chinese, and that the chief engineer, chief accountant, traffic manager, and senior maintenance officer should be Japanese. The Peking Government has the power to appoint such Japanese as suit it, and the Tokyo Government may refuse to confirm an appointment when it considers the appointment ill-advised. Mr. Liu Meng-hsiung, Councillor of the Communications Office, was the chief Chinese representative. Mr. Ogadiri said he had always held on to the line of argument that the railway in project would be a Chinese line, that its development as a business asset will depend upon the Chinese, and that it would be wrong to consider the Line as a Japanese railway because of its connecting with a Japanese railway and being constructed with Japanese capital.

MANUFACTURES AND INDUSTRIES

Osaka Laborers in Demand.—With the expansion in the war trade, as already stated, scrambles for skilled hands were started in Osaka with growing intensity. According to the advice lately received the scrambles have been brought to such a state that hands on their way home are enticed by factory owners with better wages. Sometimes a fight ensues between the employers of the enticed hands and those enticing them. Wages have naturally been raised at an accelerating rate.

Japanese Dye Co. Formed.—The new company to be named the Nippon Seizo Kabushiki Kaisha, or the Japanese Dye stuff Manufacturing Co., Ltd., the main office to be located in Tokyo, the capital of the company to be 8,000,000 yen made up of 160,000 shares of 50 yen each, the first call of capital will be 12.50 per share. Experts in the industry will be dispatched to Osaka and Wakamatsu to investigate the prospects of establishing the company's factories there. On November 6, a committee of 14 to undertake the promotion was formed. The committee decided that of the 160,000 shares, 90,000 shares shall be offered for public subscription and 70,000 shares shall be allotted to the promoters and those specially connected with the industry. Each promoter is bound to subscribe for not less than 300 shares. The number of shares offered to the public is greater than those reserved for promoters because the enterprise is one of national interest.

The Cabinet early in October took up the matter of subsidy for the manufacture of dye stuffs and drugs. The policy of aiding the dye stuff and drug manufacture was approved by the Diet at its special session, but the details of the policy were left to be worked out by an Imperial decree.

Paper Pulp in Japan.—Paper mills are doing a satisfactory business, but are suffering from a scarcity of imported pulp, which is still indispensable in Japan for the production of the finer qualities of paper. As a result some Japanese paper firms have started the manufacture of pulp. The Oji Paper Mill led the way in Sakhalin. Other mills have had difficulty in securing suitable sites, with the result that they are still incapacitated from undertaking the preparation of pulp on any large scale. The pulp made in Sakhalin is said to be superior to the Canadian product.

Japanese Cotton Industry.—A 13 per cent increase in the production and one of 22 per cent in the exports of cotton yarn marked the activities of the Japanese cotton spinning and weaving mills in 1914, according to reports from American consuls, despite the unsettled conditions in the world markets that affected industry and trade everywhere during the last six months of the year. Piece goods, however, remained practically stationary as to the total value of exports, although radical changes occurred in the shipments to China and Kwangtung—to China, 27,042,188 yen worth against 19,874,882 yen in 1913; to Kwangtung, 3,408,548 yen against 9,260,554 yen. At the close of 1914 the industry boasted 369,910 more spinning spindles, 19,094 more twisting spindles, and 1,660 more looms than it had a year and a half previous.

AGRICULTURE

Philippine Rice Import.—During two weeks ending June 29 there was imported from Indo China to the Philippines 4,771 tons of rice for local consumption. During the first three months of the present year there were no less than 20,035 tons of the cereal imported into the islands from the same source as compared with 9,978 during the corresponding three months of 1914.

India's Cotton Crop.—The acreage of the fields planted with cotton is now 11,847,000 acres. Compared with last year, these figures show a decrease of 22 per cent. In Central India, the decrease was 11 per cent, in the Punjab 41 per cent, and in Madras there was an increase of 74 per cent. Except in the Punjab the crop promises to be good.

Rice in Dutch East Indies.—Reports from Batavia are that the area under rice in Java and the island of Madura during 1914 totaled 7,064,925 acres. Production was 7,106,000 tons of 2,000 pounds, or 251,600 tons less than in 1913.

Rubber in Cochin-China.—The export of rubber from Cochin-China is becoming more important every year, says the *India Rubber Journal*. Last year the customs returns showed an export of 96 tons, valued at £17,211. This year the figures are 148 tons, valued at £26,680. A recent publication estimates the capital employed in the production of rubber in Cochin-China to be not less than Fr. 30,000-000 (£1,200,000); this is probably below the right figure as there are numerous small private estates whose capitalization cannot be calculated. The same publication gives the actual planted area as 35,000 acres, with some 4,626,000 trees. Labour is said to be 25 per cent cheaper than in Malaya. Planters have not yet felt any great lack of labour, yet it does not appear that the cost of production is lower than in Malaya.

India's Rice and Sugar.—The final official forecast of the rice crop of India for the 1914-15 season, based on returns from provinces that contain 99 per cent of the total area under rice in British India, shows an acreage of 76,181,000, which is 1 per cent larger than the revised figure of last year. The total estimated yield is 27,964,000 tons of cleaned rice, or nearly 3 per cent below the revised figure for 1913-14. Reports received from provinces that contain 99.4 per cent of the total area under sugar cane in British India indicate an acreage 9 per cent below and a yield 3 per cent above the revised figures of 1913-14, the final estimate of the 1914-15 crop being 2,315,000 acres and 2,367,000 tons, against 2,540,000 acres and 2.291,000 tons in 1913-14.

Sugar-Beets in New Zealand.—The erection of a beet-sugar plant near Hamilton, New Zealand, has been given much attention of late. The Waikato Valley is said to have some of the best soil in the world for raising sugar beets, and it is claimed that it would easily produce 16 tons of ground beets to the acre, judging by the experiments already made. It is proposed to ask the New Zealand Government to assist in the matter of land and transportation facilities, and it is thought French and Belgium sugar-beet growers can be induced to come out to assist in the cultivation of the beets. The pulp would serve as a valuable food for stock being raised in this rich valley.

Mongolian Rubber Scheme.—It is reported from Japanese sources that Chinese merchants at Tientsin are to organize a company to cultivate rubber trees in Inner Mongolia, so that the material for rubber goods required in China can be furnished by the company. The capital is estimated at $600,000. If all goes well, they except to realize annual profit of say two million dollars.

FINANCE

China's Income for 1916.—The Ministry of Finance has estimated the amounts of income from the following items for 1916 to be:—

Land tax $8,000,000 (Mexican); salt tax $84,000,000; Customs duty $100,000,000; title-deed tax $13,000,000; building site tax $6,000,000; produce and consumption taxes $15,000,000; mining tax $2,000,000; business license tax $10,000,000; income tax $5,000,000; estate and property succession tax $5,000,000; note-issuing tax $3,000,000; miscellaneous taxes $10,000,000; weight and measure tax $20,000,000; premium bonds profit $2,000,000; certification fee $2,000,000; minting subsidiary coins $25,000,000; and royalties and all kinds of extraordinary income $35,000,000.

China's New Taxes.—The Ministry of Finance has decided to enforce three new taxes viz., a marriage contract tax, an income tax for officials and a house tax, thus hoping to raise an additional revenue of 30 million dollars per annum.

China's Budget.—The Budget gives the ordinary revenue as $426,237,715; extraordinary revenue $45,709,710 and the ordinary expenditure as $236,138,564; extraordinary expenditure $135,806,146. The principal items of ordinary expenditure are: Ministry of War $135,818,986; Ministry of the Interior $49,665,490; Ministry of Finance $53,673,691; Ministry of the Navy $17,101,779; Ministry of Education $12,617,582 and Extraordinary Expenditure: Ministry of Finance $175,756,997; Ministry of War $6,438,727.

Salt Revenues Released.—The Banks today released another $6,000,000 from the Salt revenues for the use of the Government, making the total $37,000,000 from this source for the year.

China's Monarchy Expense.—It is estimated that the funds required to defray the expenditure to be incurred in connexion with the inauguration of the Empire will aggregate something like $3,900,000, distributed as follows:

Funds for offering sacrifices to the gods, mountains, rivers and deceased emperors of former dynasties $261,954. Construction of new buildings and the repairing of old palaces are estimated at 1,050,781. Feasts and banquets in celebration of the Imperial inauguration, $228,800; Funds required for rewards will amount to $697,034; Funds for holding receptions, $515,023; Funds for miscellaneous expenditure $1,178,653; Funds for the Grand Ceremony, $1,661,122.

Japan's Budget.—The Japanese Budget for the next fiscal year has been put at Y553,504,264, showing a decrease of Y36,824,207 from the practical Budget for the current fiscal year. The estimates of the different Departments of State follow:—

Ordinary List

Civil List	Y 4,500,000
Foreign	4,478,900
Home	12,788,981
Finance	154,319,206
War	78,855,757
Navy	46,596,165
Justice...	11,639,930
Education	11,589,930
Agri. and Com....	7,134,400
Communications	67,521,844
Total	Y397,502,171

Extraordinary List

Foreign	Y 2,238,600
Home	34,589,037
Finance	25,818,418
War	15,383,330
Navy	53,418,061
Justice...	980,664
Education	693,073
Agri. and Com....	7,222,663
Communications	15,658,187
Total	Y156,002,093

The chief items of the new appropriations for the next fiscal year are the organization of two new divisions in Chosen requiring an outlay of Y1,259,462, as the first annual allotment, and the construction of new warships to the amount of Y7,321,388 in the ordinary list and the supplementary appropriation of Y5,885,450 for the construction of warships in the extraordinary list.

Japan's Revenue Decrease.—The Japanese government revenues for 1915 have decreased 73,000,000 yen over the previous year, according to a report of the Finance Department. All the items of revenues show decreases except the land tax. The figures show revenues amounting to 258,528,960 yen, and expenditures to 253,998,974 yen. The revenue includes a transfer of 86,227,545 yen from the previous year.

Financing Manchuria and Mongolia.—The nature of the new financing organization for South Manchuria and Eastern Mongolia, as reported in Japanese newspapers as the Government plan, is as follows:—The new bank shall be capitalized at Y10,000,000 with its head office in South Manchuria. The loans advanced by the Special Loan Service of the Yokohama Specie Bank shall be restored to the Central Treasury as they are repaid, and may be transferred to the charge of the new bank. The Deposit Section of the Finance Office shall underwrite the debentures of the new bank to the maximum amount of Y15,000,000 bearing interest of not more than 5 per cent. per annum. The new bank shall advance long-term loans on the security of real estate in addition to general banking business. The bank is authorized to issue debentures up to ten times the paid-up capital. The rates of interest on the loans of the new bank shall be made subject to the approval of the Government semi-annually.

Japan's New Bank Project.—The business prospects of the Sino-Japanese Bank the establishment of which is now under consideration at the Finance Office, Tokyo, are said to be expected to be as follow:—

Sino-Japanese Bank—Capital Y20,000,000.

The First Working Year: Capital..		Y20,000,000
Paid-up capital		5,000,000
Fixed capital...	500,000	
Working capital ...	...4,500,000	
Profit accruing therefrom		253,150
Debentures to be floated		3,000,000
Margin of profit		22,500
Total working capital		7,500,000
Total profit		275,650
Sundry expenses		250,000
Net profit		25,650
Grant from Government		300,000
Total net profit		325,650
To be disposed as follows:—		
Reserve fund		32,565
Dividend at 5.86 per cent.		293,085

It is expected that the dividend will be raised to 6 per cent. in the second working year and to 8 per cent. in the ninth.

New Philippine Bank:—The Philippine assembly committee on banks and corporations has approved the principle of the Martin insular bank bill, but will present to the lower house a measure of its own providing for certain fundamental changes in the character of the bank, chief among which are the increase of the initial capital to P20,000,000, and the provision that private capital may invest in the enterprise. The new bill provides for the division of the capital into three distinct funds. A certain per cent will be available for loans on real estate; another fund will be available for agricultural loans on crops either in the fields or stored in warehouse; and the third portion of the capital will be used for industrial commercial purposes. The measure also provides that private capital may be enlisted in securing the funds necessary for the initial capital of the bank. The bank will be authorized to make loans on real estate, liquid assets, and miscellaneous assets, the latter to include all classes of bankable paper not included under the other two heads; to issue real estate bonds in any sum not to exceed 75 per cent of the amount of real estate loans held by the bank; to issue circulating notes in any amount not exceeding 75 per cent of the liquid assets held by it; and to purchase and own such real estate as may be needed to carry on its business, according to the bill drafted by Vice Governor Martin and indorsed by the economic committee recently approved by the Governor General.

Philippine Income Tax.—The total Income tax collections for the Philippine Islands during the first nine months of the calendar year 1915 amounted to about P440,000, of which amount about P400,000 was collected on 1914 incomes and about P40,000 represents postponed and delinquent collections and penalties on 1913 incomes.

The total number of returns on 1913 incomes filed in the office of the Collector of Internal Revenue between January, 1914, and September, 1915, were, individuals, 1,614, corporations, 1,934. The total number of returns on 1914 incomes filed between January and September, 1915, were, individuals, 1,507, corporations, 2,251. This shows that the number of corporation returns for 1914 incomes filed during nine months exceed by 317 those filed for 1913 incomes in a year and nine months, while the corresponding individual returns show 107 more for 1913 than for 1914 incomes. In all probability, the final returns will show a considerable increase in the number of returns for both individuals and corporations for 1914 as compared with 1913 incomes, owing to the fact that a number of delinquent returns are still to be received and a number of returns are in the hands of provincial officers and are not included in the above figures.

The collections on 1914 incomes, both corporations and individuals, so far as received in the office of the Collector of Internal Revenue for both Manila and the provinces until September 30th were: Corporations, P225,944.98; Individuals, P169,460.00 a total of P395,404.98.

Philippine Revenue Increase.—An increase of P554,205.17 for October 1915 over the figures for the same period of last year and a total increase of P4,320,728.89 for the 10 months of this year over the same time in 1914, is shown by the October internal revenue statement. Following are the totals:

	1914	1915
October	P920,227.43	P1,474,432.60
Ten Months ...	19,070,679.22	23,391,408.11

BOOKS REVIEWED

Business Training.—Not only is the "Handbook of Business Training" by Chow Shi-san what it purports to be, but it goes far beyond its title and is really a compendium of export and import business methods in general. The work is the outgrowth of a series of lectures delivered before the Commercial Classes in the Y.M.C.A. School of Commerce, Shanghai, and stands alone in its field. Not only exporters and importers in China but students of commerce in every country need to know the methods of doing business in the Orient which are set forth in Mr. Chow's Handbook. In addition to a description of various documents and their use, actual copies of the forms, with explicit directions for filling them out are given, and the book may be recommended to every one engaged in trade in and with China as the only complete compendium issued to date. The Commercial Press, Shanghai. Price $3.00 Mex.

Text Book of Botany.—Although the plants of China have not known many investigations by Chinese authors, although lists more or less incomplete will be found in many works by explorers and scientists, it remained for the Commercial Press of Shanghai, in issuing a text book of Botany, by N. Gist Gee, A.M., to present to the world a work that is not only most modernly scientific in its treatment of the subject, but from a pedagogical standpoint is hardly surpassed in quality by the text books used in countries supposedly more advanced than China. The Appendix giving lists of plants adds greatly to the value of the work.

Publishers: The Commercial Press, Shanghai. Price $3.00.

Electrician's Pocket Book.—"The Practical Electrician's Pocket Book and Diary for 1916" which has been received from Messrs. S. Rentell & Co., Ltd., 36 Maiden Lane, Strand, London, W.C., is so full of matters pertinent to the electrician's trade, that it should find a large sale, not only among the working electricians but amongst experts as well, who will find in it not only the small things pertaining to the work but the large ones as well. The chapters on "Boilers," "Steam Engines," "Producer Gas" and other motive powers serve, too, as data, and make complete this handy little vademacum. The price of issue is 1s. 6d., with 3d. for postage to Great Britain and colonies.

The Geography of China.—Despite its design as a school book to be used by Chinese students learning English, the Commercial Press's "Geography of China," written by Horatio B. Hawkins, M.A., should prove a welcome addition to the library of every one interested in China from an economic, political or manufacturing standpoint. Its maps and descriptions of the country, together with the information regarding manners and customs and projects, presents a very lively picture of this realm of 400,000,000 people.

Publishers: The Commercial Press, Shanghai Price $1.00.

MINING

Chinese Mining Regulations.—According to Japanese press reports the existing regulations governing mining in China have been extremely unpopular with Chinese as well as foreigners. The Diplomatic Corps has been pressing the Peking Government to remove restrictions concerning investment of capital, and the Chinese interested in mining enterprises have complained of the difficulties thrown in their way for launching fresh undertakings. These complaints have at last roused the Peking Government which proposes the following revisions:—

A wider latitude shall be accorded for the investment of foreign capital. The mining work, whether carried on by Chinese or foreigners, shall be properly supervised. Due protection and encouragement shall be extended to the opening and maintenance of mining work. A reduction in the mining taxes shall be introduced.

Gold Mining in Anhui.—The Peking Government has decided to establish a Gold-mining Bureau in Anhui to work the gold mines in the province. The Ministry of Agriculture and Commerce has submitted a request to the President, requesting the latter to nominate an official for the Directorship of the Bureau.

Chinlingchen Iron Mine.—An iron mine located at a point 7 miles from Chinlingchen Station on the Shantung Railway whose quality of ore has been very favorably reported by experts, is about to be operated in conjunction with the Hengshan Colliery.

In view of the splendid prospect of the mine, the Japanese authorities have constructed a light railway connecting the mine with the railway station. Messrs. Okura & Co. are reported to be anxious to obtain the lease on the mine, but the authorities, well knowing the disadvantage of working any iron mine independent of a railway, will follow the plan left by the Germans and may refuse to sanction any private concern to engage in the enterprise, working it themselves instead.

Ore-Treatment in Korea.—The report of the Oriental Consolidated Mining Co. for the fiscal year contains the following information on the operation of its mills and cyanide-plants:

Mill.	Stamps.	Ore. Tons Crushed.	Concentrate Tons Saved.	Bullion Tons From ore.
Tabowie	80.	117,928	13,719	$407,395
Taracol	80.	135,732	12,108	302,319
Kuk San Dong	40.	12,790	1,316	27,988
Maibong	40.	26,330	925	210,305
East Candlestick	10.	5,109	5,109	33,740
Total	250	297,889	33,177	$981,747

The average stamp-duty over 230 days was 4.456 tons. The ore assayed $6.55 per ton, and about 50 per cent was recovered in the mills. The concentrate was valued at $780,740, of which $643,571 was extracted as follows: The Taracol cyanide-plant treated 26,037 tons (including 210 tons of dump retreatment), with 83.9 per cent recovery, an increase of 1.4 per cent, but at 14c. per ton higher cost; Kuk San Dong, 1398 tons with 54.2 per cent; Kuk San Dong retreatment, 2837 tons with 73.3 per cent; Candlestick, 5109 tons with 52.5 per cent; and Maibong tube-mill plant (completed late in January), 800 tons with 73.9 per cent, but an average of 88 per cent is expected.

Milling cost 48c. and concentrate 21c. per ton of ore treated ($1.88 per ton of concentrate treated.) The total extraction was 90.3 per cent. Improvements and reconstruction of plants amounted to $140,037.

Korean Mining Dispute.—According to the *Seoul Press* a Korean miner named Chai Yung-tai, of Seoul, has brought a suit in the Seoul Local Court against the Collbran Bostwick Development Company, claiming the sum of Y. 113,660. The plaintiff alleges that in 1893 he discovered a promising copper mine at Kapsan, South Hamkyong Province, and secured the right to work the mine. He carried out preliminary work, investing no small capital in it. Subsequently, however, the Mining Law was revised, and taking advantage of this, it is alleged, the defendant company filed an application with the authorities concerned to secure the rights at Kapsan Mine. Subsequently a contract was concluded between Mr. Chai and the Company to transfer the mining rights to the Company on condition, it is alleged, that the Company pay Mr. Chai as indemnity the sum above stated. The Company did not pay, hence the suit.

Fushun Collieries Outputs.—The daily output of the Fushun Collieries have been restored to the old 6,000-7,000 tons footing. The fire in Laohutai Colliery last January reduced the outputs by about 1,200 tons or so. However, the operation of the open cast at Kuchengtzu and the incline at Wantowu, coupled with the partial restoration of Laohutai Colliery to working order, has materially improved matters.

Antimony Output of China.—The Trade in Antimony of Changsha during the year 1914 was given much prominence as a result of the war. When it became known to all the Chinese interested in the trade that an urgent demand for antimony had arisen and that the one important producing area available was Hunan, the Chinese seized their opportunity and cornered the market.

The following table shows the amount of antimony exported from Changsha during the last four years:—

Antimony—	1911. Tons.	1912. Tons.	1913. Tons.	1914. Tons.
Regulus	1,566	2,012	2,106	2,735
Crude	7,245	5,386	6,914	9,816
Ore	501	680	4,169	4,672
Ash	1	1	6,283	2, 53

Zinc and Lead in China.—Among other exports from China which are making steady progress year by year, are lead and zinc ores, the output of lead in 1914 being close on 4,000 tons and that of zinc 12,597 tons. The producing sources are at Shuik'oushan, the output of which is controlled by three German firms, while the machinery used is either of German or, strange as it may appear, of local make. It is a remarkable fact that a foreign trained Chinese mechanical engineer, assisted by a staff of foreign-trained Chinese fitters and mechanics, turns out on the spot, in a remote district of Central China, a number of articles of modern machinery which serve their purpose excellently. The output of the Shuik'oushan mines was pledged for six years to a German firm, in return for an advance of Tls. 1,000,000 without interest made in 1912.

Tzuchuan Colliery, Shantung.—The colliery at Tzuchuan, Shantung, passed through the first stage of the restoration work at the hands of a party of Japanese experts last January. The second stage of the restoration work was entered upon. At the same time mining work was put in hand. The restoration work was nearly finished a month or so ago. The daily output is now about 1,000 tons. In the spring, it is expected, the original daily yield of 2,500 tons will be attained. Out of the present daily output of 1,000 tons, 300 or 400 tons are set apart for the use of the Shantung Railway, the rest being disposed of at Tsingtau and elsewhere.

Iron Mine on Quelpart Island.—A large iron mine with an area of about two miles square has been discovered on Quelpart Island south of Port Hamilton, Chosen. It is thought probable that marine mishaps, which have occurred very frequently about the Island, were due in a measure to the iron in this mine which may have affected a ship's compass, says a Japanese newspaper.

Gold Mines in Laotiehshan.—Working of gold mines in Laotiehshan Hills, Port Arthur, excepting such as have concessionaires to operate them, will be left to the Engineering College, Port Arthur, according to a Japanese report. This is done to give opportunities of practical training to the students of the mining and metallurgical course of the College. The arrangement is to be put into execution from the next fiscal year.

Japanese Mining in South Manchuria.—Among the nine mining areas in South Manchuria where Japanese are permitted, by an exchange of notes between the Japanese and Chinese Governments on May 25, 1915, to prospect for and operate mines, one of the largest and most promising is the iron mine in the Anshanchan region, between Liaoyang and Penhsihu, in the central part of Shengking Province. The seam extends from near Liaoyang to the neighborhood of Penhsihu, and in point of magnitude is pronounced as equal to the well-known mine at Tayeh, Hupeh. The percentage of iron contained in the ore varies. The working of this mine is to be intrusted to the South Manchuria Railway Co. which will not confine its labors to mining ore, but proposes to manufacture iron as well. For smelting purposes it is said Penhsihu coal will be used. A site for the smeltery, about 83 acres of land, has been chosen. The undertaking is considerable and the capital for investment is estimated at $5,000,000.

New Guinea's Petroleum Prospects.—Much interest has been aroused by the prospecting for petroleum, in new Guinea fields, by Dr. Wade. As the result of extensive field work, he reached the opinion that a great stretch of the country which he examined, amounting to something like 3,000 square miles, was, so far as general structure was concerned, most favourable to the accumulation of petroleum in many isolated anticlines. Local evidences of petroleum are evident in the form of seepages from the strata and of mud volcanoes exuding gas, oil, and water; but, of course, the final word rests with the drill, progress with which, as is so often the case with pioneer operations in inaccessible country, was very disappointing.

It has been reported, though no mention is made of the fact in the Government report, that the Commonwealth Government proposes to reserve the exploitation of any oilfields discovered for State enterprise, and therefore, perhaps there is not the same urgency felt in arriving at a rapid decision as to their value. What legacy the war will leave to Australia in the way of trans-oceanic territory it is too early yet to speculate, but an impulse is certain to be given to the more thorough examination of areas like New Guinea, which may turn out to be of material value to the mineral industry in energetic hands.

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END THE PHILIPPINE MUDDLE!

America is Bungling and Botching by Political Partizanship a National Task Which Can and Should Be Taken Out of Politics

[BY PATRICK GALLAGHER, EDITOR OF THE FAR EASTERN BUREAU; FOUNDER AND FIRST EDITOR OF THE PHILIPPINES FREE PRESS]

We Americans are making a sorry mess of our opportunities in the Philippines. A national task which cries out to us from across the Pacific is being bungled and botched because, instead of approaching it in a national spirit and applying to it the wisdom, the experience, the imagination, the courage, the capacity which we possess in abundance, we are discouraging and disgusting ourselves and disconcerting and disappointing our Filipino friends through blunders born and fostered by political partizanship. Unless we are willing to open our eyes to the truth, to see and to acknowledge our error, to recognize the one possible remedy and to adopt it, the ambitious undertaking which we shouldered—largely by accident and, perhaps, too light-heartedly—seventeen years ago, is doomed to dismal failure.

We have just witnessed the unpleasant spectacle of a distinguished and unquestionably sincere cabinet officer charging a former President with partizan bias, and the former President's plea in justification. Other less distinguished, less sincere political controversialists damn or deify the acts of our present administration in the Philippines; the bewildered American having no special means of information on the subject wonders which side is right, which side is telling the truth and which side is not? The question is very easily answered.

Neither side is telling all the truth. In this matter of our present and past government of the Philippines both sides are fundamentally wrong.

For seventeen years the party out of power, if not the one in control, has made a political issue of the Philippines. Possibly, at first, that could not be avoided. But it could, and should have been avoided in the framing or in the amending of the Philippine organic act. "It is never too late to mend." We can end our muddling, our blundering in the Philippines if American disgust over the present unsavory situation concentrates behind a demand that our national task in the Philippines be lifted out of the whirlpool of politics so that we may do the work that still remains to be done as thoroughly and as expeditiously as possible.

Mr. Taft speaks with honest pride, with commendable admission of his personal interest in our unfinished Philippine undertaking. He labored well for his country, for the Filipinos, at Manila as the first and only civil governor—the more imposing title, "Governor-General" he helped bestow upon his successors—all, without exception, honorable, able men. Mr. Taft, General Wright, Judge Ide, General Smith, Mr. Forbes—the nominees of three successive Republican administrations—I do believe gave the best that was in them to the performance of difficult, sometimes heart-breaking work at the Ayuntamiento and Malacanang, Manila. I am just as sure that Mr. Francis Burton Harrison is giving the best that is in him, now, as the Democratic nominee at Manila. They are all sincere, able, honorable men. But all, to my knowledge, have made mistakes.

Mr. Taft very properly blames Mr. Harrison for not heeding sufficiently the advice of experienced American officials, long on the ground, and for too summarily (in some cases) and most unfortunately (in others) displacing able and successful pioneer civil servants before actual experience of the Manila governmental atmosphere could come to the aid of his better judgment and assist him to avoid mistakes, injustice. Well, so, too, did Mr. Taft err when he first went to Manila, ultimately to build well and wisely, to win an international reputation which no patriotic American will begrudge him. General Arthur MacArthur had very strong views on this subject, and I am quite sure that Mr. Taft—honorable, manly to a fault—wiser through experience, will be among the first to admit that in at least some things MacArthur was right and he was wrong.

Mr. Taft blames Mr. Harrison for adopting too readily the views of Messrs. Quezon and Osmena, while (very fairly and frankly) he commends one of Mr. Harrison's acts in direct opposition to the will of his Filipino associates. Before Messrs. Quezon and Osmena (as a lineal and inevitable result of Mr. Taft's own policy in the Philippines as civil governor and, later, at Washington as secretary of war and President, and by right of their popularity and the polled votes of the Filipino people) became political powers in the islands, the late Benito Legarda and T. H. Pardo de Tavera were utilized by Mr. Taft and his successors in much the same way. I have a vivid recollection of incidents of importance where good and honest American advice was over-ruled or ignored to placate the self-constituted representatives of the Federal Party—men whose title to Filipino leadership was so dubious that the first political typhoon blew them into oblivion. At least, Mr. Harrison's Filipino associates have the merit of being representative, according to our American standards; while in justice to Mr. Taft it must be said that he had to make the most of the most tractable, available material.

All these charges and counter-charges are susceptible of analysis which leads inevitably to the conclusion that much can be said upon both sides. Our government of the Philippines has not been ideal: we have flopped, blandly, from one blunder to another. We are doomed to go on blundering, muddling, "building and spoiling, spoiling to build again,'' until that day when the American people will surely force Congress to take the Philippines out of politics. This is as certain to happen as anything in this most uncertain world.

The utter ignorance of the average Congressman as to vital Philippine facts is amazing. Republicans, Democrats, alike with eye and ear trained to domestic political possibilities, stop off at Manila, Cebu, Iloilo and Zamboanga, "inspect conditions,'' absorb mountains of misinformation—usually aided by disgruntled, discharged officials—and return to Congress and their constituencies to belch forth lava which loses nothing that partizan heat can bestow. A plague upon both their houses! Many years residence in the islands, free from interested, partizan surroundings, taught me to regard these "expert" outpourings as not merely valueless but positively dangerous.

It is high time to stop theorizing, wrangling over the Philippines. While we are wasting valuable time in Congress and in the islands, coddling the Filipinos one moment, curbing and cussing them the next, our real opportunities out there are lying fallow, Philippine bonds which should be booming are as drugs in the market—vastly alluring world monopolies are crying in vain for capital. Capital will not flow into the Philippines, trade cannot thrive, until the government of the islands is put upon a businesslike, instead of upon an unstable, partizan footing. With all respect to Mr. Taft, whose breadth of vision I admire, our government of the Philippines has been at no time free from the partizan taint, however otherwise may have been intended, and despite the very laudable association of able men who were avowed, if not very pronounced, Democrats.

Here is the one possible cure for our present Philippine muddle:

Let us admit to ourselves and frankly tell the Filipinos that, while sensible of the binding character of the promises already given to concede complete Filipino independence when the Filipinos are able to sustain and defend themselves as an independent nation, **if, then, they elect to pass from under our flag**; with honor to ourselves, in view of the responsibilities which, wisely or unwisely, we have undertaken, in their own interest much more than in our interest, **we cannot—even if we desired to do so (which we do not)—name that future, possible, day of severance.** They must trust us to be just and fair, while we are bound in honor to give them a real chance to become self-governing, as we have been doing, as undoubtedly we will continue to do.

If we had advanced more rapidly and, prior to August, 1914, set up an independent Filipino commonwealth (as was advocated) under an international guarantee of neutralization, what flag would now be flying over the Philippines? The FAR EASTERN REVIEW asked this question shortly after the outbreak of the **Great Folly.** Is it not morally certain that the resultant complications would have plunged the United States into the war? This **Great Folly** has vitally affected the Philippine problem. The Filipinos, with whose aspirations I am in hearty sympathy, should step guardedly, cautiously, now, lest they make an irremediable blunder.

Let us re-organize our government of the Philippines, remembering that we have set out to do something that has never been even attempted in the previous history of the world—to nationalize (with all that means) an alien people, whose history and traditions have nothing in common with our own. Let us realize the solemn truth that we can only succeed by bending all our own national energies to the job and that, for our own credit, **we must not fail.**

Let us write into a new Philippine Bill a provision which will make the Governor-General at Manila absolute master of the situation, free from baneful partizan influence, subject to removal only for cause and after impeachment and trial, giving him an ample term—ten years or thereabouts from his accession to the governorship. Assure to the vice-governor, appointed by succeeding Washington administrations, succession to the governorship, unless removed for cause after trial and impeachment. Stabilize the Philippine service, in the interest alike of American and Filipino officials, by according fixity of tenure and retirement on pension after faithful service. If wisdom and foresight exist at Washington and Manila these things can and will be done.

Spain failed in the Philippines because she tried to govern the island from Toledo and Madrid. The intrigues, the wrangles of court and Cortes are being duplicated by us on the backstairs of the White House, in Congress, in the Press. Are we living up to our reputation for shrewdness, for capacity in government, while now we tread in the self-same blunder-blotched footsteps of Spain?

ROADS—THE SALVATION OF CHINA

[BY ARTHUR J. MOORE-BENNETT, C.E., F.R.G.S.]

From the earliest times rulers of all countries have found it expedient and necessary to build roads, and such roads built in the Roman Empire by men who lived more than two thousand years ago are to-day found acting as the foundations of the roads on which countless thousands of men, stores, and guns are being conveyed by motor traction in the area of the armies in Northern Europe. The coming of the locomotive for some years diverted men's minds from a true appreciation of national highways, but the advent of the light steam tractor and the motor engine again focussed engineers' attention upon the adaptation of the new invention for transportation purposes. The result has been that in every continent new national highways, and roads with surfaces calculated to stand the stress of modern conditions, have been laid down. Even in such densely populated and highly developed lands as Britain and France much freight, which ten years ago was wholly handled by railways, is now being carried by motor transport with a greatly decreased ton mile cost, while in the newer countries, such as India, Canada and the United States, tractor and motor roads have been the means of opening up and developing industries which could not have been aided in any other way, and thousands of miles of these roads now exist in America alone.

Of all the great countries in the world, China is easily the worst provided with efficient means of communication, and the purpose of this article is to show how China, profiting by the lessons learnt by others—could build all the roads necessary for her interior development without borrowing from foreign countries and without enhancing her external obligations in any way.

At this time when the Western Provinces are threatening anarchy, it would be the salvation of China if she had efficient means of communication between Peking and the outlying provinces. At any time, however, it is imperative that there should be direct means of communication with the Frontier provinces both East and West in order to allow the Central Government to exercise its authority over the distant and often unruly Provincial Governments. It will be seen that while political trouble in the central Provinces can only affect the Chinese, the same trouble in those provinces which border on foreign countries may possibly jeopardize the whole country, and while its takes fifteen days or more to reach the Western Frontiers via the sea route—which involves using two foreign countries en route and which is impracticable for troops—or facing a fifty days' journey overland from the nearest Chinese port, direct com-

munication could be obtained which would bring the Western frontier within one week of Peking at less than one-fifteenth of the cost of any railway which has yet been suggested or surveyed.

Many of the Provinces which make up China are as strangers to each other for want of efficient communication, and while the ties between them and the Federal Government must of necessity be elastic a real lack of control exists in many cases merely because the people are so shut off from outside communication that they become intensely localized and have all the traits of character and feeling common to communities whose geographical position precludes social and commercial intercourse with their fellow subjects in neighboring provinces.

Again, most of the internal industries of China suffer from lack of free communication. Many industries, indeed, are impossible owing to the fact that no means of communication exist. Mining in many provinces does not pay for the same reason, and mule and camel hauls of four and five hundred miles are by no means uncommon, while certain trade routes of upwards of a thousand miles are kept open only by animal traffic over the worst trails imaginable.

The Chinese officials fail to recognize that the lack of roads has far reaching political and commercial effects, and that much of the political unrest of the last few years would not have existed had free communication between the different Provinces been opened. The Government also fails to recognize that a poverty of roads means a poverty of taxation as it does a general state of disruption and lack of work, while good roads mean development both political and commercial; and the free interchanging of ideas, resulting from communication, means a general state of well-being both for the people and the government.

In many districts of a mountainous nature—and it should be noted that fully three-fifths of the country comes under this heading—the farmers in the valleys cannot get sufficient for their cereal crops to pay the cost of growing, while their neighbours on the mountains but a few miles away cannot afford to buy sufficient rice and wheat to keep them in health, a condition of affairs resulting from an absence of roads and the cost of transport. If decent roads existed both farmers and mountain people would be better off, and both could afford to pay more taxation than is to-day possible. In certain of the mining centers this is very noticeable. For instance, in Kochiu, in Yunnan, food of every description, coal, charcoal, etc., has to be carried on mules over rough mountain tracks from twenty up to two hundred miles, and the resulting cost of bare necessities is so high that although the miners are actually well paid yet they are probably the poorest class and community in the country. This is also true of the copper areas, notably Tungchuan, where supplies of all kinds have to be carried in on mules, and the resulting copper has to be carried out 130 miles to the nearest port, over ranges of more than nine thousand feet in altitude.

Tractor or motor roads have been built in India and Canada by white and native labour at a cost of from five hundred to seven hundred and fifty pounds sterling per mile average run on long distances, and here in China such roads could be entirely built by employing criminals. For many generations China has beheaded countless prisoners for various offences, and if, instead of wasting this potential labour, she were to change the sentence to one of life long imprisonment and labour on the roads, the prisoners would be just as surely punished as by being executed and the up-keep cost need not exceed that of a picul of rice and a catty of salt per man per month, or, put in money terms, let us say two dollars fifty per month per man. Soldiers could be used as warders, and as these have to be maintained in any case the cost would not be raised on this account, and every criminal of any kind could be sentenced to labour on the road as a punishment for all offences of whatsoever kind.

Old and disabled men could be used for breaking road metal, for cooking and for cleaning quarters, and no labour of any kind need be wasted while existing prison staffs could be utilized in the work. Women offenders could be utilized making suits, etc., for working prisoners, and the whole work could be planned to give light and severe punishment as was considered necessary.

The number of offenders in a certain province in 1912 was given to the writer in confidence as being about 7,112 for the year, of which over 600 were executed, and while this does not probably represent a fair average still there must be at all times within the empire at least fifteen thousand criminals who might be used to profit by the community on road work.

The bulk of work to be done is purely manual in character, and would not require either the employment of expensive foreign aid or tools, although it would probably pay the government to get the work organized and started by some very competent organizer and engineer who knew both the country and people; and while there might not be sufficient skilled bridge builders, masons and carpenters among the criminals employed and at the disposal of the authorities such men could probably be hired at a very much lower cost than has been found possible in foreign lands.

The actual cost per mile would, of course, vary enormously with the varying conditions met with, but for a twenty foot macadamized tractor road, with bridges and culverts to take a limit of five ton axle loads and a surface to stand speeds of five ton loaded tractors at six miles per hour, or light cars at fifteen miles per hour, the cost of labour and tools for average miles could probably be kept down to less than three thousand dollars, although bridge work might increase the cost in certain sections.

It should be borne in mind that efficient roads are now in operation in Western Canada and Burma having grades of one in eleven, and such grades permit of lines being chosen which would be utterly impossible for any other form of mechanical traction, and whilst such steep grades are not to be recommended for all the year transport, grades of one in fifteen or sixteen have been found to give excellent results in countries having as great an annual rainfall as any part of China.

It would, of course, be necessary to guard such roads from being used by the narrow tyred native cart, which is calculated to ruin any road surface in the world, and it would be essential for the government to have the right to take any land sites necessary for right of way which its engineers declared necessary, otherwise the costs would be prohibitive. Inasmuch as the passage of such a road would enhance the value of the surrounding property the hardship would not be great while the good conferred on the community would be immeasurable.

In well surveyed main trunk highways it would not be necessary or desirable to follow the present plan of making the road twist and turn in order to touch every small village enroute, but the easiest and shortest line would be taken between the terminii, and short feeder roads would be built to the main road from such towns, cities, and villages as desired direct communication, while mining centers and industrial works of all kinds could construct branch roads to their works.

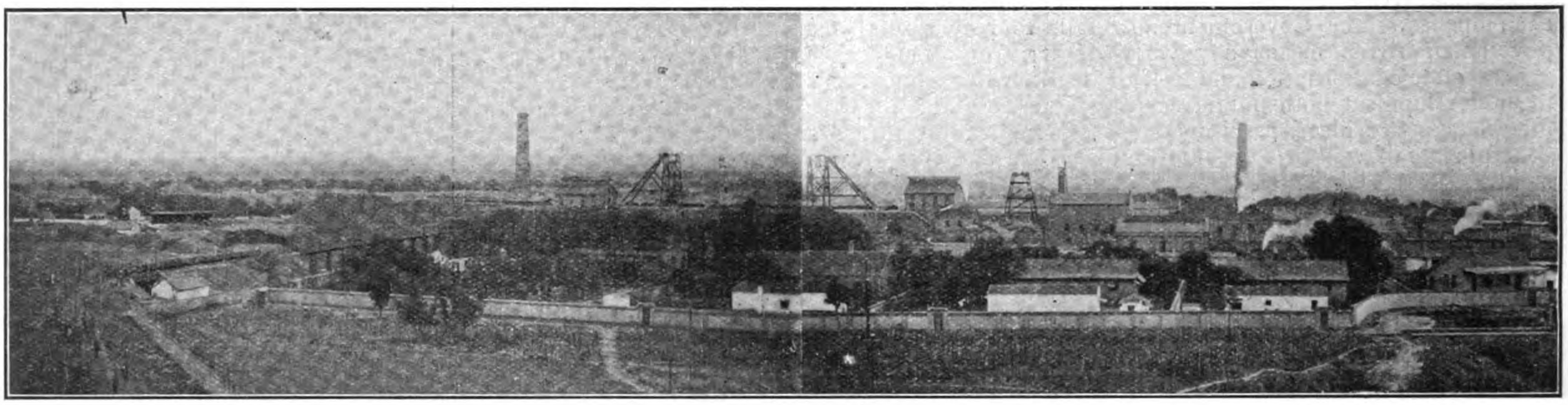
The cost of such roads should be borne partly by the Federal government, which would derive direct political aid from them, partly by the provincial governments, through which they passed as these governments would derive direct taxation gains owing to the developments the roads would make possible, and partly by the prefectural districts actually served, as these would benefit by enhanced land values. And every government, both federal and provincial, as well as municipal, should be ordered to make grants-in-aid for the annual up-keep of such roads, or, if this is not considered possible in China, then toll charges should be made, or every vehicle be licensed, and these taxes used for up-keep. Such a road built from Hankow or Wuchang, going via Yochow, Shenchowfu, Chenyuan, Kweiyang, to Yunnanfu or Talifu would make it possible for fast light cars to do the distance in less than a week, while troops could be transported in regulation pattern three ton lorries at the rate of two hundred miles per day as against less than thirty miles per day by forced marches, and the whole cost of such a road need not exceed £300,000, including costs of the necessary rock crushing plant and road rollers.

Direct West or South-west of Peking into Shansi, Shensi and Szechuan the country is eminently adapted for such roads, and the whole country only needs such communications to enable it to develop as other countries far less gifted with natural resources have done.

Motor tractors and lorries are not expensive either in first cost or up-keep, and if these are objected to, then steam tractors of similar pattern to those which are doing such good service in Europe to-day can be had at relatively low cost and be capable of long life. Coal and coke being plentiful in most provinces of China their fuel and up-keep costs would probably be even lower than motor lorries. In France and Britain to-day goods can be transported by road cheaper than by train, and government loads up to eighty-five tons per piece have been handled on ordinary British roads during the last year by steam tractors. If this war has proved nothing else it has proven that the road lorry and tractor as now constructed can go over practically any surface, can extricate itself from almost any shell crater and ditch, and generally can be handled under the most trying conditions possible at a minimum of cost, and after the war Europe at least will owe more probably to this, the newest form of transport, than to any one other invention of recent years.

China built the great wall, and if this has to some extent outlived its usefulness still it proved itself a bulwark against the wild northern tribes for many a generation, and if China can build a work which is one of the seven wonders of the world then surely China to save herself from foreign aggression, to help her people to develop and to increase her richness can at this time, with two thousand years more education and experience than her predecessors of Chin-shih Hwang-ti's time, build the roads which are as necessary for her good government as they are for her commercial development.

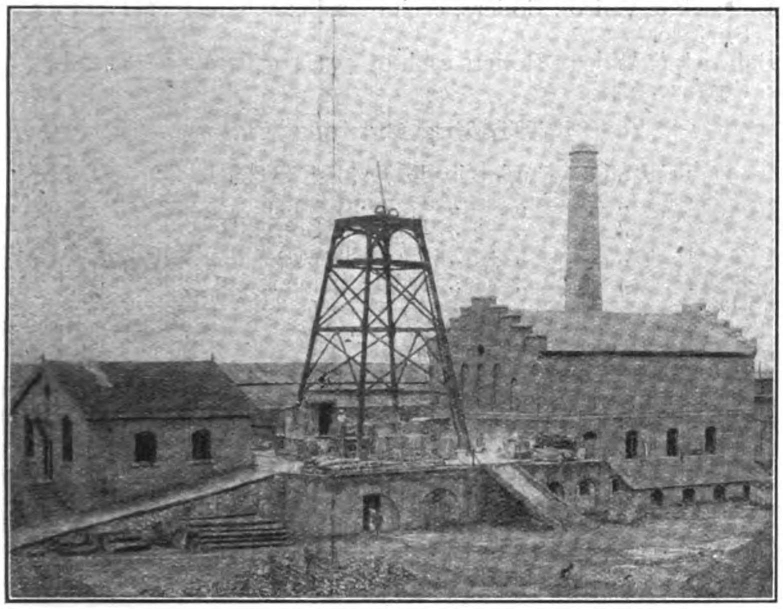
Different men see China's needs in various aspects, but the writer believes that many of this country's problems could be solved if good roads were given the people, and commercial, political, and social intercourse were secured between the many races and tribes that go to form this conglomeration of States. Certainly much distrust and suspicion of motives that now exists could be swept away, and many industries which have starved for lack of roads could be resuscitated, while the central government could assume a far more direct control over far off territory than would be possible by any other means. China is not capable of building a vast system of costly railways, and pledging her money to build them and so mortgaging her executive freedom to foreign nations is not truly helping her to develop in her own interests, but showing her how to adapt foreign inventions to her necessities and conditions will do far more both to aid her in developing and ruling the country and also in appreciating the use of foreign advice and experience.



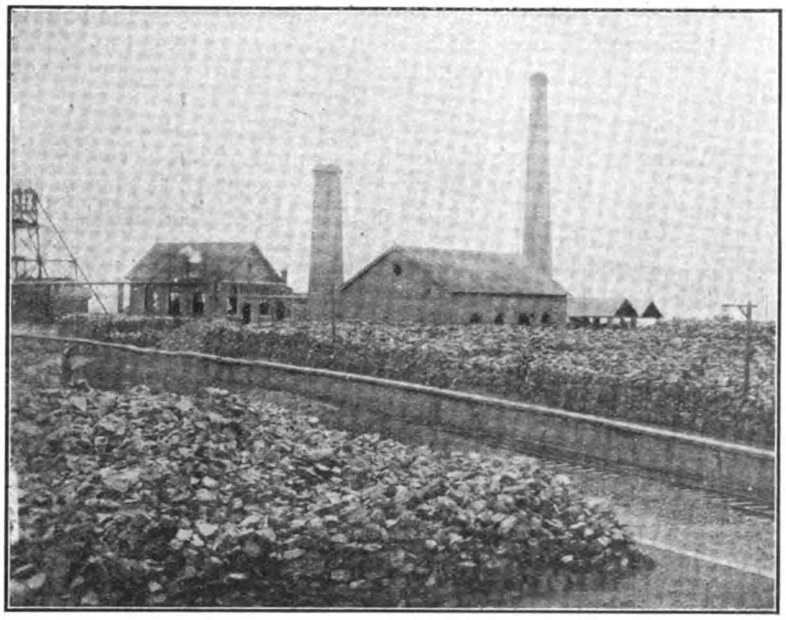
General view looking from North, showing No. 2 pit on left, No. 3 and No. 1 pits on right

PEKIN SYNDICATE'S HONAN MINE

The Pekin Syndicate Limited was formed in March, 1897, for the purpose of obtaining and developing Concessions for Mining, Railway, and other undertakings in China. A contract was signed at Peking on 21st June, 1898, in connection with operations of coal mining on an extensive scale in North Honan. After the usual preliminaries a permit was granted by the Chinese Government to commence mining operations at a place selected by the Syndicate in the District of Hsiu Wu Hsien in the Prefecture of Huai King. Principally owing to the Boxer Rising in 1900 little work was done until May, 1902, when the preliminary survey was made. Sinking operations were commenced at the end of 1902 but had not proceeded very far before water difficulties were encountered. The sinking of a second shaft was commenced in the early part of 1903. Water was also encountered in such quantities that it was found necessary to abandon all further sinking pending the arrival of additional boiler and pumping plant. On resuming operations further quantities of water were met with and no less than 150,000 gallons of water were flowing into the mines per hour. In 1907, what are at present known as Nos. 4 and 5 Shafts were commenced and successfully carried down to the coal, which was reached in August of that year. Subsequently operations were recommenced at the shafts which had been temporarily abandoned, and in 1911 a total output of about 1,000 tons per day was obtained. The output gradually increased to 2,000 tons per day when in September, 1912, No. 4 Pit, which was then producing 875 tons per day, was flooded: the water rising some considerable distance up the shaft. The estimated amount of water at the time of the in-burst was 250,000 gallons per hour, but the flow gradually decreased. This disaster was followed by another inburst of water in April, 1913, this time in No. 2 Pit which was then producing 700 tons per day. Both these Pits had, therefore, to be temporarily abandoned, which left only one producing Pit, No 6, the output of which was under 500 tons per day. Steps were immediately taken to increase the output of No. 6 Pit, and at the same time work was commenced in connection with a new shaft (Machien Pit), about one mile distant West of the other shafts. No. 4 Shaft was recovered in October, 1913, and is now producing 500-600 tons per day. Machien shaft is also producing coal, and the mines are now capable of producing 3000-4000 tons per day. Water continues to flow into the Mines, but this is now comfortably dealt with by the large Hathorn Davey, and other pumps. The Syndicate's coal is sold by the Fu Chung Corporation which was brought into active operation on the 1st June, 1915, for the purpose of handling the sales and combining the interests of the local native mining concerns. The coal is sold in large quantities in the Provinces of Honan and Chili. There is also a ready market for the lump and cobbles in the various Treaty Ports in China. The Tao-Ching Railway built by Messrs. S. Pearson & Sons for the Syndicate connects the mines with the Pekin-Hankow Railway, and also with the Wei River at the Eastern terminus. Coal is shipped in large quantities along the Wei River and Grand Canal, and the Fu Chung Corporation maintain a fleet of Chinese shallow-draft boats running between Taokou and Tientsin, carrying coal to the latter port and returning with machinery, plant, stores, etc., for the mines and the Tao-Ching Railway.



No. 3 Pit Main Pumping Station



No. 4 Pit and Loading Wharf

Geological Conditions of the Honan Coalfield

The coalfield of Honan is situated at the base of the Tai-Hang Mountain Range, which rises abruptly from the Honan Plains forming the plateau of Shansi. The succession of strata in the district is briefly as follows:—

1. A recent deposit of alluvium yellow and red clays with conglomerate beds up to a thickness of 250 feet. The conglomerate beds near the base are mostly water bearing.
2. Yellowish arenaceous clay shales with beds of yellow and brown vertically cleaved sandstones. The uebercarbons of Richtofen which in Shansi are of a thickness of 1,000 feet are in the case of Honan 90 feet.
3. *Coal Measures.*

Upper Series	feet
Brown and Green Sandstone	60
Grey and Blue Shales	20

Middle Series	
Brown, Blue, and Grey Sandstones	60
Black clay, Shales, and Sandstones	40
Chao-Mei. (Coal Seam is generally present) varying thickness up to	1

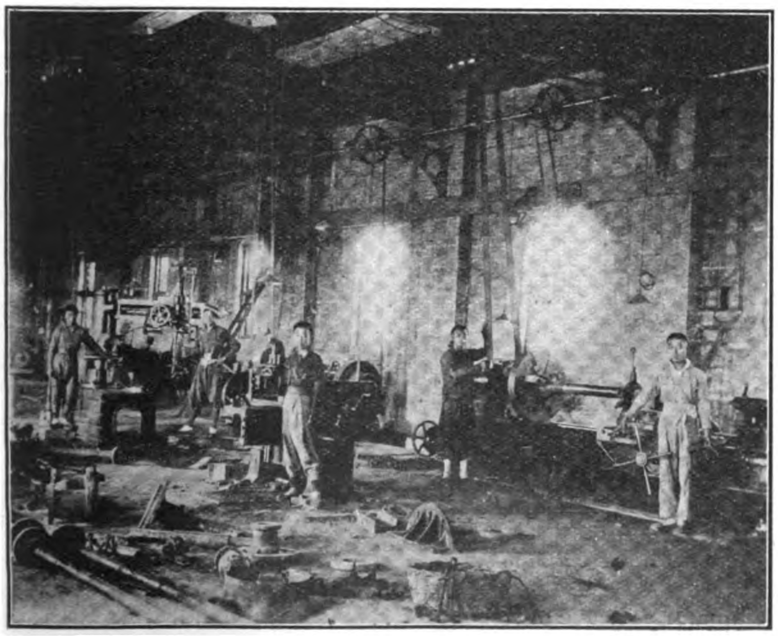
Lower Series	
Black and Grey Sandstones	60
Black Shales, and Sandstone bands	10
Coal measures strata above the main seam about	251 ft.

4. Main seam of coal, thickness varies from 6 ft. to 30 ft., average, say .. .. 18 Feet
5. Clay Shales, and Sandstones: the Shales being Carbonaceous near the top.. .. .. .. 250 Feet
6. Flint Limestone, massive dark blue or grey Limestone, contains nodules of black flints .. 30 Feet
7. Vertically cleaved variegated sandstones with brownish clay shales, and at the base white clay shales with bands of iron ore .. .. .. 80 Feet
8. Carbonaceous Limestone: grey and blue with purple bands at 1,000 feet down in the series .. 2,000 Feet

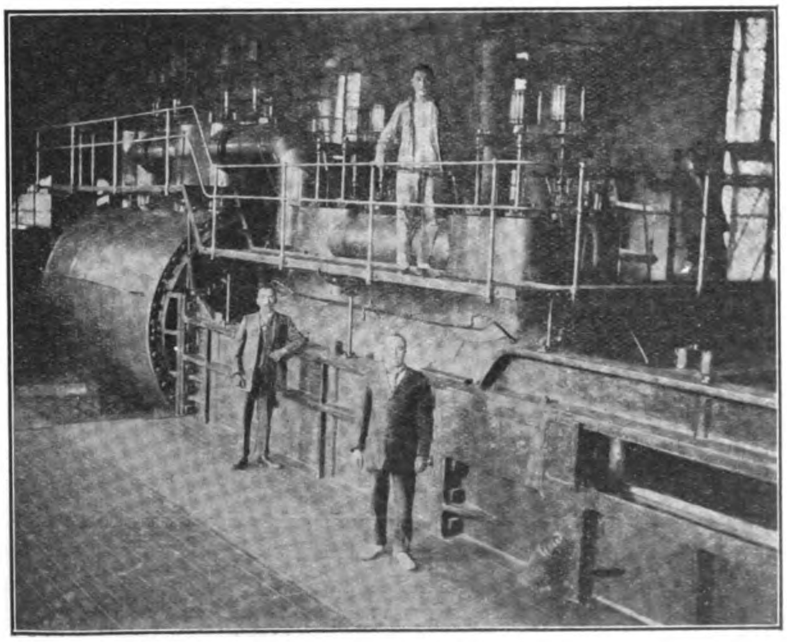
Method of Working

The workings have been laid out on the "Pillar" system. All working places are secured by timber sets, the legs being notched into the end of the bars, and the feet sunk into the floor.

In coal where the top part is hard and the bottom soft, the bottom portion of the seam is worked first, undercutting being done in the soft coal which forms a good "pricking."



Section of Machine Shop



Hawthorn Davey Pumps

Where possible the face is worked in two stages, the bottom part being worked up to 20 feet in advance of the top. This allows the top coal to give, and makes it easier to wedge down. The fullest advantage is taken of the cleavages in the coal for cutting in, "nicking" or giving loose sides to wedge off.

Wherever it is possible to obtain round coal, undercutting is adopted by the native miner, who is fully aware of the pecuniary advantage to be gained by the production of "Lump" coal as compared to "Mixed."

Where the seam is soft throughout or where the hard coal lies at the bottom, or the seam is a mixture of thin hard bands with intervening layers of friable coal, the roads are driven in the upper part next the roof, followed up by a "Canch" out in the roof to make height.

Plant

Owing to the large amount of water to be dealt with, a large proportion of the Plant comprises pumps of various types. At the main Pumping Station a large Cornish Pump by Messrs. Hathorn Davey & Co. has been installed. The main features of this Pump are as follows:—

Diameter of H. P. Piston—7 feet.
,, ,, L. P. Piston—9 feet 2 inches.
Stroke—10 feet.
Speed—Average 7 Strokes per minute.
Capacity—440 gallons per stroke or 184,800 gallons per hour.
Steam pressure—75 lbs. per sq. inch.
Diameter of Delivery Pipe—21½ inches.

The Engine is worked on the drop valve system governed by the Davey Patent Differential Gear and has a Davey Trip Gear which automatically stops the Engine should the stroke exceed the designed length. The Piston Rod is connected by means of compression rods to the Quadrants, which give the spears a lifting motion. The Spear Rods are 20 inches square, and are coupled to rams by means of iron shoes. The Rams are bronze cased having a diameter of 26 inches. The Ram cases are 11 feet by 3 ft 8 in with brass neck bushes and brass glands and stand on cast iron foot steps 5 ft 5 in. by 4 inches. There are 52 Single Drop Valves, each valve having a diameter of 9 3-4 inches. The Suction Pipe is 16 feet long, and the nozzle is 4 ft. by 3 feet. A Surface Condenser has been installed in connection with this pump. In addition to the Hathorn Davey Pump the following Pumps are in use or standing as spare:—

8 Evans Horizontal Ram Pumps, capacity 30,000 gallons each per hour.
2 Worthington Jet Condensing Pumps, capacity 45,000 gallons each per hour.
4 Evans Differential Sinking Pumps, capacity 20,000 gallons each per hour.
8 Evans Cornish Sinking Pumps, capacity 1,000 gallons each per hour.
2 Weirs Boiler Feed Pumps, capacity 2,700 gallons each per hour.
2 Weirs Boiler Feed Pumps, capacity 6,670 gallons each per hour.
2 Worthington Duplex Pumps.
2 Worthington Horizontal Pumps.
1 Tangye Pump.

In addition to the above the Syndicate have installed the following Electrical Pumping Plant:—

4 Three stage Turbine Pumps by Weise & Monski, each capable of dealing with 75,000 gallons of water per hour against a total head of 700 feet. These Pumps are direct coupled to Siemens Protected Type Slip Ring Induction Motors, each with an output of 400 B.H.P. at 1485 Revs. per. min. 3,000 Volts, 50 Cycles.

Boilers

The main Boiler Plant consists of:—

4 Lancashire Boilers, each of 1,000 square feet Heating Surface.
12 Babcock & Wilcox Boilers, each of 1,797 square feet Heating Surface.
2 Babcock & Wilcox Boilers, each of 2,852 square feet Heating Surface.
2 Babcock & Wilcox Boilers each of 5,764 square feet Heating Surface.

Winding Engines

1 Winding Engine by R. Daglish & Co.
1 ,, ,, ,, London Bros.
1 ,, ,, ,, Barclay, Son & Co.
1 ,, ,, ,, Cowlishaw, Walker & Co.
1 ,, ,, ,, Allis Chalmers & Co.

also

1 Steam Winch.
2 Crab Winches by Evans & Co.

Electrical Plant

The Electric Lighting Plant comprises 3 D. Generators each 40 K. W. 450 Volts by Siemen Bros. Dynamo Works, Ltd., direct coupled to 3 Vertical High Speed Engines by Ransomes, Simms & Jeffries.

The Electric Power Plant consists of 3 Generating Sets, 3,000 Volts, 125/147 K. W. by Mather and Platt, direct coupled to 3 Vertical Engines. One Main Switchboard with all necessary control gear.

In addition to the above the Syndicate have installed the following additional Power Plant:—

3 Siemens Three Phase Base Type. Alternators each with Shunt wound Exciter. Output 350 K.W. each at 3,000 Volts direct coupled to Browett-Lindley two crank compound, forced lubrication, enclosed vertical double acting Steam Engines, each with steam separator and steam trap.

3 20 B.H.P. Slip Ring Three Phase, protected type Induction Motors, each provided with protected Rotor starters, and switches. These Motors are wound for 500 Volts. Transformers are provided for reducing the voltage from 3,000 to 500.

3 Ejector Condensers by Ledward & Beckett, each to deal with 10,000 lbs. exhaust steam per hour, and maintain 26" Vacum with Barometer at 30" and cooling water at 750 F. 60,000 Gallons of cooling water required per hour, each. Each Condenser complete with Centrifugal Pump designed for total head of 30 feet.

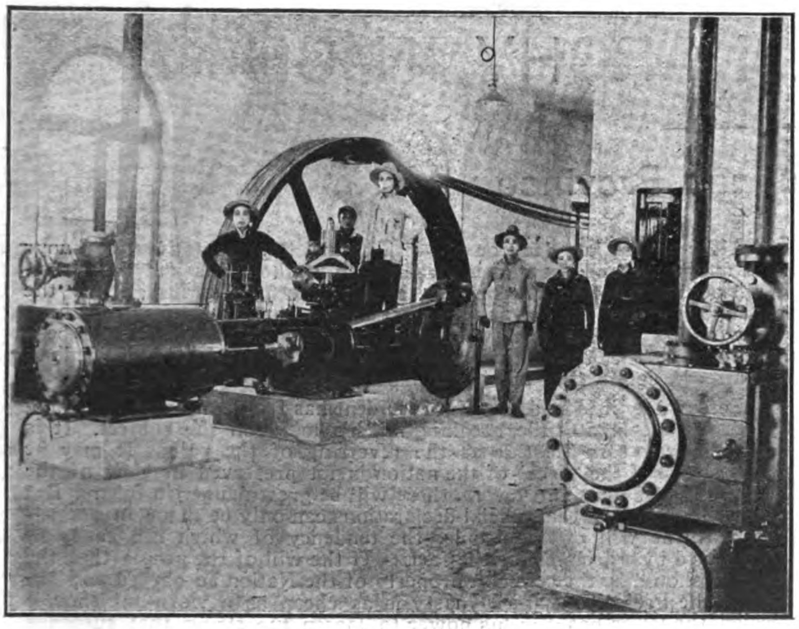
Brickworks

In connection with the mines the Syndicate have installed an up to date brick making plant capable of producing 1,000 wire cut bricks per day. The plant comprises 1 Brickmaking Machine, Pan, etc.

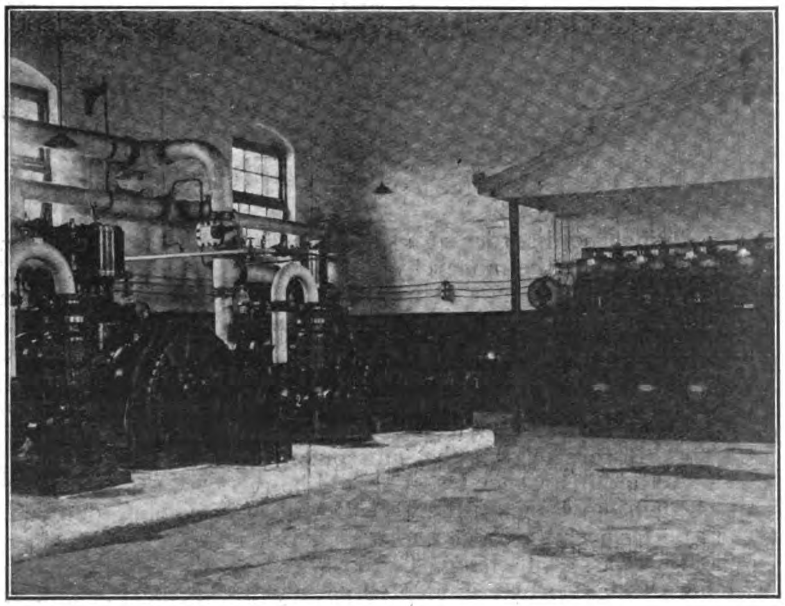
2 Drying Sheds, and 1 four-department tunnel dryer.
4 Down Draught Kilns.
7 Chinese Kilns.
1 Kiln for Fire Clay Goods.
2 Lime Kilns.

The coal produced by the Syndicate is a semi-anthracite, and being practically smokeless is very suitable for industrial and marine purposes, but in this connection the best results are obtained when used in Boilers provided with suitable draught. The following is a result of a test recently made on a small battery consisting of 4 Babcock and Wilcox Boilers working together:—

Start of the Test	10 a. m.
End of the Test	4 p.m.
Duration	6 hours.
Kind of fuel used	No. 2 Cobbles.
Average observed pressure	100 lbs. p. sq. inch.
Tempera.ure of Feed Water	78 F.
Temperature of Air outside	55 F.
Temperature of Air entering the boilers	62 F.
System of draught	Natural.
Force of draught in inch water	0.5
Average height of water level at starting	4"
Average height of water level at ending.	4"
Total quantity of Coal fired	12600 lbs.
Quantity of Coal fired per hour	2100 lbs.



FAN ENGINE, No. 5 PIT



SECTION OF POWER HOUSE

Quantity of coal fired per hour and per boiler	525 lbs.
Grate area of each boiler.	49 sq. feet.
Quantity of coal fired per hour and per sq. f. of grate in each boiler	10. 7 lbs.
Heating surface of each boiler	1797 sq. f.
Weight of coal burned per sq. f. of heating surface per hour in each boiler	0.29 lbs.
Total weight of ashes in the 4 ashpans ..	819 lbs.
Percentage of ashes	6.5%
Total water evaporated in the 4 boilers ..	120,637 lbs.
Water evaporated per boiler	30,159 lbs.
Water evaporated per boiler per hour ..	5,026 lbs.
Water evaporated per sq. f. of heating surface and per hour in each boiler.	2.79 lbs.
Water evaporated per lb. of coal	9.57 lbs.
Water evaporated per lb. of coal reduced from and at 212 F. under atmospheric pressure	11.26 lbs.
(Factor of evaporation 1.177).	

The coal is also very suitable for Locomotives as will be seen from the following Test:—

Particulars of the Locomotive:—

Type	2-6-0 Mogul.
Weight of the Locomotive and Tender in working order	94 t. 171.
Heating Surface. Tubes 1294,2 Fire box 137,2 .. .. Total	1431,4 sq. f.
Grate Area	34 sq. f.
Capacity of Tank of Tender	3650 gallons.

Total distance of Test	166 Miles.
Time occupied for Trial	11 h. 30 minutes (30)
Weight of Coal burned	5,820 lbs.
Kind of Coal fired	No. 2 Cobbles.
Weight of water evaporated	39.367,4 lbs.
Weight of ashes from ashpan..	918 lbs.
Weight of cinders from smoke box	84 lbs.
Percentage of ashes to coal burned	15, 7%
(included in the weight of ashes is about 5% of small coal under 1/2". owing to the shakes of the Locomotive working.)	
Average pressure during the travel	145 lbs per sq."
Average temperature in smoke box	565 F.
Average draught in smoke box in inch water	0,4
Average Temperature of Feed water in Tender Tank	57,75 F.
Average Temperature of Feed Water in Injector	157 F.
Total water evaporated	39.367 lbs.
Weight of Coal burned per hour	506 lbs.
Weight of Coal burned per sq. f. of grate and per hour	14.8 lbs.
Weight of Coal burned p. sq. i. of heating Surface p.h...	0.35 lb.
Water evaporated per hour	3423 lbs.
Water evaporated per hour and per sq. i. of heating Surface	2,39 lbs.
Water evaporated per lb. Coal	6.76 lbs.
Factor of evaporation	1,207
Water evaporated per lb. Coal, reduced from and at 212 F. under atmospheric pressure	8,159 lbs.

The Syndicate have recently started an Exploitation Dept. and undertake contracts for Boring operations in connection with prospective Collieries. They possess a complete equipment of the latest Diamond Drilling Plant.

General

Labour is plentiful during the winter months, but in the summer difficulty is occasionally experienced in obtaining the necessary unskilled labour owing to the demand for labour in connection with the harvest.

From October to the end of April the climate in Honan is ideal. It is very dry and particularly healthy. The temperature is lower than that of England. The heat is rather intense in the months of July, August, and September.

The Syndicate employ a large Staff of Europeans at the Mines. They are all provided with foreign style bungalows, and facilities are afforded for recreation, such as cricket, football, tennis, golf, etc. A club building has been erected by the Syndicate for the use of the European Staff. The club is equipped with 2 Billiard Tables. There is also a Reading Room with Library. A well equipped Hospital is maintained by the Syndicate and a fully qualified Foreign Medical Officer resides at the Mines.

The Syndicate also have Offices and Depots in Tientsin, Peking, Shanghai, and Hankow.

In Tientsin the Syndicate have installed a small up-to-date Briquetting Plant for the purpose of making Ovoid Briquettes out of Anthracite Dust.

RESTORATION OF MONARCHY IN CHINA

The Revolt of Yunnan Province

Though no disorder of any kind had attended the elections and balloting on the monarchy question in China, reports, particularly from Japan, showed that it was certain that the Republicans would endeavour to galvanize into life a movement against the Government. Rumours began to circulate towards the end of December about the intentions of General Tsai Ao, formerly chief of the Land Measurement Bureau, who had been one of the most zealous supporters of the monarchical movement, and others. Before relating the subsequent proceedings of General Tsai Ao and his associates, it should be recorded that, following upon the bestowal upon the Vice-President of a princedom with the title Prince Wu Yi, a number of other honours were conferred. Hsu Shih-chang, Chao Erh-shun, Li Ching-hsi and Chang Chien were appointed Privy Councillors; military Governors Lung Chi-kuang, Chang Hsun, Feng Kuo-chang and Chiang Kuei-ti were created Dukes, while the military Governors of other provinces (including Tang Chi-yao, of Yunnan) were given marquisates. A number of Counts, Viscounts and Barons were also created. As Hsu Shih-chang (Secretary of State) had become a Privy Councillor, Lu Cheng-hsiang (Minister of Foreign Affairs) was appointed Secretary of State while continuing to act as Minister of Foreign Affairs.

Returning to General Tsai Ao, the first intimation that rebellion was brewing was given by a report that the Military Governors of two of the south-western provinces had telegraphed to Peking asking that the monarchy should be cancelled and that the promoters of the movement should be decapitated. It was soon learned that the provinces in question were Yunnan and Kweichow. The reports were at first disbelieved as Tang Chi-yao, the military Governor of Yunnan, had been most emphatic in urging the change in the form of government and had given earnest assurances that the people and troops of Yunnan were strongly in favour of the restoration of monarchy. It was not until December 28 that it became definitely known that a state of rebellion actually existed in Yunnan. On December 23 telegrams were received in Peking purporting to be signed by Tang Chi-yao and Civil Governor Jen Ko-cheng. As these documents are of historical interest we reproduce them, availing ourselves of the translations which appeared in the *Peking Gazette*, to which we are also indebted for translations of other documents which are given later.—

Republicans' First Telegram to Yuan Shih-kai

To the Great President: Since the question of *Kuo-ti* was raised consternation has seized the public mind; and on account of the interference of various Powers the spirit of the people has been more aroused. They have asked the question, "Who has invited the disaster, and brought upon us such great disgrace?" Some one must be responsible for the alien insults heaped on us.

We have learned that each day is given to rapid preparations for the Grand Ceremony; and it is now true that, internally, public opinion has been slighted, and externally occasions have been offered to foreigners to encroach on our rights. Our blood runs cold when we face the dangers at the door. Not once but twice hath the President taken the oath to observe and obey the Constitution and protect and maintain the Republic. The oath was sworn before Heaven and Earth; and it is on record in the hearts of millions of people and the words thereof still echo in the ears of the people of all nations. In the Classics it is said that "in dealing with the people of the country, faith is of the essence of great rule." Again it is written that "without faith a people cannot endure as a nation." How then can one rule the people when he "eats" his own words and tears his own oath? Principle has now been cast to the winds and the *Kuo-ti* has been changed. We know not how the country can be administered.

Since the suspension of the National Assembly and the revision of the Constitution, the powers of Government have been centred in one person, with the added freedom to do whatever seems meet without let or hindrance. If the Government were to use this power in order to reform the administration and consolidate the foundation of the Nation, there would be no fear of failure. For the whole country would submit to the measures of the Central Government. Thus there is not the least necessity to commit treason by changing the *Kuo-ti*.

Although the late decision of the Citizens' Representatives in favour of a monarchy and the request of the high local officials and the President's accession to the Throne have been represented as inspired by the unanimous will of the people, it is well known that the same have been the work of ignoble men whose bribery and intimidation have been sanctioned by the Authorities. Although inept efforts have been made to disguise the deceit, the same is unhidden to the eyes of the world.

Fortunately it is said that the President has from the very beginning maintained a calm attitude, speaking not his mind on the subject. It is now as easy to turn the tide as the reversing of the palm. It may be objected that if the "face" of the nation is not preserved in view of the interference of Foreign Powers, there will be great danger in future. But it must be observed that official declarations can only be made in accordance with the will of the people, the tendency of which can easily be ascertained by searching for the facts. If the will of the people that the country should be the common property of the Nation be obeyed and the idea of the President that a Dynasty is as cheap as a worn-out shoe is heeded, the latter has it in his power to loosen the string that suspends the bell just as much as the person who has hung it. If the wrong path is not forsaken, it is feared that as soon as the heart of the people is gone, the country will be broken to pieces and the dismemberment of the Nation will take place when alien pressure is applied against us. We who have hitherto received favours from the President and have received high appointment from him hereby offer our faithful advice in the spirit of men who are sailing in common in a boat that is in danger or of those who love sincerity and cherish the unbroken word. We hope that the President will, with courage, refuse to listen to the speech of evil-counsellors and heed the voice of conscience and of honour. We further hope that he will renew his promise to protect the Republic and openly swear that a monarchical system will never again appear.

Thus the heart of the people will be settled and the foundation of the Nation will be consolidated. Then by enlisting the services of sagacious colleagues in order to surmount the difficulties of the time and sweeping away all corruptions and beginning anew with the people, it may be that the welfare and interest of the Nation will be furthered. In sending this telegram our eyes are wet with tears knowing not what more to say. We respectfully await the order of the President with our troops under arms. (*Signed*) Tang Chi-yao and Jen Ko-cheng.

The Second Telegram

For the Perusal of the Great President:—In our humble opinion the reason why the people—Chinese and foreign—cannot excuse the President is because the movement for the change of Kuo-ti has been inspired and originated in Peking, and that the ring-leaders of the plot against the Min Kuo are all "bosom-men" of the President. The Chou An Hui, organised by Yang Tu and five other men, set the fire ablaze and the circular telegram sent by Chu Chi-chien and six other persons precipitated the destruction of the Republican structure. The President knew the bad deed was being done and yet he did nothing to arrest the same and to punish the evil-doers. The people, therefore, are suspicious. A mandate was issued on the 24th of the 11th month of the 3rd year in which it is affirmed: "Democracy and republicanism are laid down in the Constitutional Compact; and there is also a law relating to the punishment of those who spread sedition in order to disturb the minds of the people. If any one shall hereafter dare to advance strange doctrines and misconstrue the meaning of the Constitution, he will be punished severely in accordance with the law of sedition."

Yang Tu for having publicly organised the said Society and Chu Chi-chien for having secretly plotted by telegram are all principal offenders in the present flagrant case of sedition. As their crimes are obvious and the subject of abundant proof, we hereby ask the President to carry out at once the terms of the said mandate and publicly execute Yang Tu, Sun Yu-yun, Yen Fu, Liu Shih-pei, Li Hsieh-ho, Hu Ying, Chu Chi-chien, Tuan Chih-kuei, Chow Tze-chi, Liang Shih-yi, Chang Cheng-fang and Yuan Nai-kuan to the end that the whole nation may be pacified. Then, and not till then, will the world believe in the sincerity of the President, in his love for the country and his intention to abide by the law. All the troops and people here are in anger; and unless a substantial proof from the Central Authorities is forthcoming, guaranteeing the maintenance of the Republic, it will be impossible to suppress or pacify them. We await a reply within twenty-four hours. (*Signed*) Tang Chi-yao, Jen Ko-cheng, etc.

Telegrams of Remonstrance from the Government

Steps were immediately taken by the Government after the receipt of these telegrams to ascertain whether they were genuine and if so to impress upon the senders the utter inconsistency of their conduct. The State Department and Army General Headquarters dispatched a telegram in the following terms to Tang Chi-yao and Jen Ko-cheng.—

The question whether the telegrams dated the 23rd from Yunnan are genuine documents or not has still to be ascertained. But in order to avoid misunderstanding we wish to reply to the principal points raised as follows:—

(1) The fact that Japan has, together with Great Britain, France, Russia and another Government, tendered advice in a friendly spirit to China, requesting the postponement of the monarchical movement for fear that a hurried change might cause internal disturbance which would damage the commerce, life and property of their nationals—but with the distinct assurance that they have had no wish to interfere with our internal affairs— is not without precedent in the history of diplomacy. This, together with their declaration of "watchful waiting" may be regarded as in the nature of approval; and recognition is in a fair way of being accorded. There is, therefore, no question of interference or disgrace at issue. How can any one fasten any blame on the Government on such a pretext, seeing that the advice was a friendly act of the friendly Powers? On the other hand the responsibility must fall on those who consider such a friendly act as an act of intervention and thus cast an insult on the country.

(2) The Mandate issued on the 11th inst. contains the following passage: "Keeping faith is of primary importance in connexion with the administration and protection of a country. When the Republic was first established I, the Great President, first took an oath before the Senate, promising to do my utmost to glorify the Republic. If I should set up an Imperial system for myself I shall be violating my own oath, an accusation which I shall not be able to explain. I, therefore, request that another person be designated as the Emperor."

The Tsan Cheng Yuan, in the capacity of the principal representatives, then replied that the taking of the oath was simply a formal undertaking by the Chief Executive of the Republic, registered strictly in his capacity as such Chief Executive, which office is itself based on the choice of the whole body of the people. The Chief Executive should follow the dictates of the people. If the people are for the Republic then the oath is valid, but if the people are for a constitutional monarchy then the validity is changed thereby. Now the people are tired of the Republic and desire to have a monarchy. With the change of the form of State the position of Chief Executive no longer exists; hence the oath becomes null and void. All these things have been done by the free choice of the people and therefore have nothing to do with the Chief Executive, etc. This explanation has been approved by lawyers both Chinese and foreign. How then can this fact be manipulated in order to assign blame arbitrarily?

(3) The change of Kuo-ti recently carried out was made by the unanimous decision of the officials and people according to legal methods. The unanimity of the will of the people can be seen through the fact that there was not a single dissenting voice. Even up till this day telegrams from military and civil persons urging [the President] to ascend the Throne reach Peking by the score every day. The shouts of joy and congratulations are as irresistible as the force of the incoming tide. How could such manifestions take place unless the change has been made by the free choice of the people themselves? Could any attempt at inducement or coercion have been so universally successful? Even Chiang Chun Tang and Governor Jen have twice sent telegrams urging the accession to the Throne. Can it be said that the Chiang Chun and Governor were induced or coerced into doing so? Can it be said that all the representatives of the province of Yunnan were induced or coerced by the said Chiang Chun and Governor? Yet false accusations are invented at your sweet will to cast a slur on the whole body of officials and people of the country. It is, however, impossible to close the eyes and ears of the world by the unreasonable and deliberately distorted views of a small number of people.

The Question of Punishment

(4) The change of the form of State was first raised by the majority of the people and merchants as well as by the military officers. The movement, though carried by an under-current, was pushed to the utmost because of the object lesson to be learned from the history of Mexico. It is the natural duty of every one to work for peace; and unless he be an enemy to the country who would oppose such an undertaking? All the first advocates were prompted by one and the same mind. Even Chiang Chun, Tsai Sung-po [General Tsai Ao] signed with his own hand the document which called for the formation of a constitutional monarchy on the 25th of the 8th month, together with other high military authorities. Is this military officer to be punished as his own handwriting can be produced even now?

(5) The sovereign rights of the Republic were reposed in the citizens. When the officials requested the Chief Executive to change the form of State the latter was firm and declined; but when the question was settled legally by the representatives of the citizens, even the Chief Executive, although his position was one of high dignity, could do nothing to oppose it, still less to cancel it. Yet this small number of people wish to cancel the decision of the whole body of the representatives. Never in history has such an illegal action been taken in any of the countries of the world. To play with the affairs of State like this is only to make themselves a laughing-stock.

In short at this time of trouble when danger lurks in every corner round our country and when all our attention and energy are needed to cope with internal and external affairs, all patriots at heart should discard all personal feelings or prejudice and devote their whole body and soul for the strengthening of the country. If any does not agree with the policy of others, he has plenty of ground to discuss matters in a sober way. If any one should only follow his own personal views and resort to dangerous actions without due consideration, he will be inviting intervention, when there is no need for intervention, and causing foreign derision when there is no occasion for derision, and bringing humiliation when there is no reason to suffer humiliation. What shall the world and future generations say about one who should overturn the country and act the catspaw of the waiting tiger?

What surprises us is the demand for an answer within a time-limit and the statement that you are waiting for it with troops under you in readiness. Such contempt for superior authority and disregard for law is simply destructive of all obedience. If all the troops and people of Yunnan should follow suit how would the superior officers control their men; danger would perhaps spring up at your very elbows. Should a wise man never think of this? Messrs. Tang and Jen are requested to give the names of the senders of the said telegrams. We have said all we wish to say and leave it to you gentlemen to decide.

Republicans' Inconsistency Exposed

A second telegram was sent by the State Department personally addressed to Tang Chi-yao and Jen Ko-cheng to the following effect.—

Both of the telegrams previously despatched from your place in connexion with the monarchical change were for the Great President's early accession to the Throne and couched in earnest terms, stating that "all the military and civil officials as well as the gentry and merchants were unanimously happy and jubilant over the matter." The other telegram reads: "The general assembly of the representatives of the citizens are unanimously for a constitutional monarchy, and the Great President has been designated as the new Emperor of the Empire of Chung Hua; a fact which shows the united hearts of the people in every part of the country. Yet the Great President has officially issued a mandate refusing modestly to assume the high title. So far as the Great President is concerned it becomes him to make manifest his modesty but when the people are earnestly longing for an efficient administration, small details of formality should not be strictly adhered to. This is why Chi-yao and others have repeatedly petitioned in earnest tone. Ever since the establishment of the Republic the desperadoes have been meddling with the administration and the people have been cast into sufferings as hot as fire and as deep as water. Had it not been for our Great President, who courageously bore the burden of the dangerous situation, no one could tell into what a state of dismemberment this country would have fallen. Although by the divine valour of the Great President danger has been turned into peace, yet it is only a temporary achievement and not a measure for permanent peace. If a sovereign ruler be not selected at this time so that the inheritance may go on for myriads of years, not only the earnest desire of the small people may thereby be disappointed but those who are unduly ambitious may have chances to disturb the prevailing peace which of course is not the wish of the Great President, whose intention is to save the people. Some may say that the change for the monarchy may give rise to excuses for the rebels to raise trouble or for foreigners to take advantage of the situation. It must be remembered, however, that the rebels are always for rebellion. If they wish to rebel, the absence of a monarchical change will not rob them of an excuse. What is necessary is that the provinces should take strict precautions. As to the change of the form of State to suit the conditions of the country and the habits of the people, the same is a matter of internal reform and has therefore nothing to do with foreign countries. Besides, all the foreign Powers are on friendly terms with China and it is not likely that they will withhold recognition.

"Now with peace and order maintained in every part of the country, and the life and property of Chinese and foreign subjects under safe protection, no chance can be better than this when Heaven gives and the people submit. We humbly hope that the Throne will soon be ascended and the popular wish of the people satisfied with a view to bring unbounded blessings to the State and give satisfaction to the mass of longing people."

Another telegram despatched from Yunnan on the 12th of the 10th Month to the Headquarters of the Generalissimo said: "Ever since the question of the change of Kuo-ti was first raised the people, military and civil inside and outside of Peking, have been eagerly looking for the day of fulfilment, hoping that thereby permanent peace may be secured. The troops of Yunnan have been all along unquestionably obedient, and with regard to this question of Kuo-ti no trouble may be feared as they fully understand the situation. The political, educational, mercantile and other classes are all longing for the early settlement of the great policy. Only newspapers are making some criticisms but as they express the views of a few ignorant people, they are not sufficient to represent public opinion or to cause any obstruction. We therefore earnestly beg that you, on our behalf, lay the matter before the Master, asking him to yield the wish of the people, to take the step without hesitation and to put the change into effect so that the expectation of the military and civil people of the whole country may thus be realised. Undesirable developments may occur if the matter is delayed any longer and the fundamental policy of the State may thus be inconvenienced. This is certainly not the original intention of the Chief Executive who desires to maintain the general situation. At this time when everything hangs by a hair we cannot remain silent so long as we are aware of the facts. We respectfully request that the Master be secretly informed of these, etc."

On the 18th and 21st of the 12th month Chiang Chun Tang sent two more telegrams to the Headquarters of the Generalissimo to the following effect:

"During the last ten days the rebels have been placing agents in the Annam part of the Yunnan province and energetically working for a

rebellion. Fortunately Chi-yao has taken careful precautions and the troops are all quiet. No disturbance need be feared."

The other message says: "The grace which has been received by Chi-yao has permeated his flesh and bones, and he has always looked upon himself as the defender of the territory and the bosom man of the Chief Executive. As Yunnan is his motherland it is his natural duty to maintain order therein. He has therefore been very strict in taking the necessary precautions against the rebels. Judging by the present situation there can certainly be no rebellion."

The telegram to the General Staff was to the following effect: "All the military officers of the middle and low ranks are all well under control. As they have always been on cordial terms with their commander they are certainly not to be influenced by the rebels. As to the officers of higher rank they all understand the righteous principles as Chi-yao himself; they can be safely relied upon to strengthen the hands of the State with one heart and soul. Taking the general situation in view, all the reliable troops, with the exception of the two battalions which have been sent to the borders to capture robbers and assist in the uprooting of the opium plants, are all concentrated in the capital as a garrison. Chi-yao is determined to carry out his policy and is taking all the necessary precautions. So long as his own life is not endangered, he does not fear any untoward developments."

In conclusion, the Cheng Shih T'ang wires:—Yet in spite of all these assurances the text of the latest telegram is very curious in nature. Only an interval of three days and the turn has taken the opposite direction with a difference of a thousand li. This State Department therefore cannot believe that your office can be capable of sending a telegram so utterly contrary in sentiment. It is therefore presumed that it was forged by some one else. We cannot take on ourselves the responsibility of submitting such a telegram. Send another telegram, the original copy of which should bear your seal and personal signature, immediately to Peking so that we may submit the same [to the Ta Huang Ti.]

Military preparations were made immediately the telegrams were received, and strong forces of northern troops were hurried southward. On December 28 a meeting of the Tsan Chen Yuan was held at which Mr. Liang Shih-yi brought up the question of the situation in Yunnan. It had been decided to ask the Foreign Office for an explicit statement in regard to the advice given by the five Entente Powers and Mr. Tsao Ju-lin, Vice-Minister of Foreign Affairs, attended for this purpose. He described the terms in which the advice was given and the reply made in which Mr. Lu Cheng-hsiang explained that the change in the form of state was being carried out in strict accordance with the Constitutional Compact in which sovereignty was vested in the people. As the change was first requested by the people the Government could do nothing but yield to their wishes. On November 11 a more formal reply was sent to each of the Ministers of the advising Powers reiterating that the movement was a popular one and that the Government had abstained from supporting or checking it. Messages had been received from each of the provinces in reply to a specific inquiry stating that the authorities could guarantee that there would be no disturbance or unrest. The provincial authorities urged the Government to restore the monarchical system. On December 15 the Ministers of the five Powers repeated their advice and the Minister of Foreign Affairs had replied that although the monarchical form of government had not yet been formally restored, the balloting had been unanimously in favour of the change being made. It was the hope of the Government that the Powers would respect the sovereignty of China by accepting the declaration made by the Government in response to the previous advice. The Ministers assured Mr. Lu that there was no desire on their part to interfere with the internal affairs of China. After Mr. Tsao had made the foregoing statement it was decided to send a circular telegram to the provinces informing them of the real facts of the case and explaining that the Powers that had given advice had explicitly disclaimed any desire to interfere with China's domestic affairs.

A Memorial was drawn up for submission to the Emperor-elect. This document, which is too long to quote textually, charged Tang Chi-yao and Jen Ko-cheng with three grave crimes: (1) Arousing ill-feeling between Chinese and foreigners; (2) Acting in opposition to the will of the people; (3) Insulting the Executive Chief of the country. They had stated that the spirit of the people was aroused because of the "interference" of foreign Powers, and had suggested that these Powers were promised special privileges in return for a promise of recognition. Both statements were shown to be entirely untrue, the foreign Powers disclaimed any wish to interfere, and the Chinese Government had promised no concessions in return for recognition. The circulation of such reports was calculated to cause diplomatic friction with the foreign Powers. In regard to the second count against these men the Memorial said that they alleged that the decision to change the form of government was effected either by monetary inducements or the pressure of influence. But both these men had themselves reported that the voting was the expression of the sincere wish of the people of Yunnan. No confidence could be placed in the statements of men who so flatly contradicted themselves. As a fact the elections were conducted fairly and no compulsion was exercised, and the people voted unanimously for a constitutional monarchy. Consequently Tang and Jen were opposing the will of the people. In the third place in their circular telegram Tang and Jen had used disrespectful expressions in referring to the Chief Executive, and accused him of violating his oath. In reality the oath taken as President was to submit to the will of the people. The restoration of monarchy was the will of the people and owing to their decision the Chief Executive was keeping his oath. The Memorial concluded: "As Tang Chi-yao and Jen Ko-cheng are guilty of the above three great crimes, the same should, therefore, be publicly proclaimed, and punitive expeditions should immediately be despatched to annihilate the violent and obstinate so that foundations of the Empire may be consolidated."

In response a Mandate was issued which quoted the Memorial in full and continued:—

In addition to the foregoing Memorial of the acting Li Fa Yuan, various telegrams of the Chiang Chun, Military Inspectors, Governors, Lieutenant-Generals and Defence Commissioners of the provinces and the great Commanders of the troops of various localities also urge that punishment should be meted out to Tang Chi-yao, Jen Ko-cheng and Tsai Ao, who sent circular telegrams everywhere to agitate for rebellion, etc. Tang Chi-yao and Jen Ko-chen twice sent us in earnest terms petitions urging us to ascend the Throne quickly, and several telegrams were received from them before the 21st day, assuring us that although there were secret intrigues and agitations of rebels in their province no trouble was expected because strict precautions were adopted, etc. But lo, before a few days have elapsed, they have changed their original intentions.

When the Kuo-ti problem was raised Tsai Ao gathered together high military officials in Peking and put his signature before others on a petition craving the introduction of a Constitutional Monarchy. Later on he obtained leave of absence to proceed to a foreign country to receive medical treatment. He has, however, secretly proceeded to Yunnan to start an agitation there. Indeed we never imagined that he would become so faithless. As Tang Chi-yao and Jen Ko-cheng are responsible for the defence of their province, they must be blamed for the failure to maintain the situation of the province of Yunnan, no matter whether the telegram was circulated under the pressure of the influence of others or by forgery of others.

Tang Chi-yao, the Kaiwu Chiang Chun, and Jen Ko-cheng, the Governor, are hereby deprived of their offices, ranks, titles of nobility, and decorations, pending investigation and punishment.

As Tsai Ao has kept secret his whereabouts and has not been careful to avoid suspicions, he is hereby deprived of his office, rank, Grand Order of Merit and Decoration; and the local officials of the said province are hereby ordered to compel him to come to Peking to await investigation and punishment.

It is interesting to record that more was known of the movements of General Tsai Ao than he probably guessed. As has been already stated he was amongst those who were most enthusiastically in favour of the reversion to monarchy. It is supposed, however, that later he came under the influence of some Republicans, and was credulous enough to believe their statements that the Chinese Government had promised special concessions to the Powers which had advised a postponement of the change in the system of government. He went to Japan and was there informed by a Republican fugitive that it was true that these special privileges had been promised. Apparently convinced of the truth of the fabrication Tsai Ao went to Yunnan and stirred up the troops who were formerly under his command to revolt. Tsai Ao headed the revolution in Yunnan in 1911 and has considerable influence in the province. It is supposed that he coerced Tang Chi-yao, who is described as a man of weak character, into associating himself with the rebellion.

As was inevitable all kinds of rumours were current in regard to the support that the rebels were to receive. For example the loyalty of Generals Chang Hsun and Feng Ko-chang was said to be doubtful, but they both immediately issued proclamations denouncing the rebels in the severest terms. The report of Kweichow having joined Yunnan was shown to be incorrect. Kwantung and Kwangsi remained quiet, and none

of the other provinces evinced any disposition to join the rebellion.

The leaders in Yunnan deemed it necessary to explain their action and they consequently issued the following manifesto.

Republican Leaders' Manifesto

A historical retrospect takes us back to the last days of the Tsing dynasty, when abuse of the administrative power thrust our country into a precarious state. Realising the necessity of fighting for national existence, our people raised the Banner of Righteousness under which the Republic was established. For the sake of national unity, Yuan was elected President; and during the first year of Min Kuo, the whole country was so eager for peace and progress that patriots sacrificed everything in order to assist Yuan. Was it because they were so attached to him that they had chosen so to act? Nay, it was because they wished—through him—to save the imperilled country. Yet in spite of the sacred trust reposed in him, he has failed to do aught that is great and abiding during the past four years. For the purpose of seizing power and strengthening his position, he has unceasingly played with political parties in his "soft-handed" manner, crushed the National Assembly, banished by mean methods those who were opposed to him, prostituted public opinion either by coercion or inducement, and employed and directed ignoble men whom he has encouraged with rewards and privileges.

Since the day he was placed in his position of trust, he has contracted upwards of 200,000,000 dollars in foreign loans and yet not a single item of expenditure he dares truly to disclose to the public. On the outbreak of the war in Europe, the resource of foreign loans was cut off. He then devoted his attention to gathering in all he could within the borders of China. Unreasonable taxes have been levied, people have been forced to subscribe to Domestic Loans, and excessive fiscal burdens have been imposed on the country. In addition, he has encouraged the extortion of the tax-gatherers who are offered high rewards in their work of impoverishing the people. His disregard of the sufferings of the people is shown by the fact that he has been "fishing them up by drying up the lakes." Thus, the people within the Confines of the Four Seas have become so financially desperate that they are pressed by poverty. Where has the money, thus "scraped up" gone to? It has been spent for "capturing the minds of scholars and officials" and guarding against "indoor thieves." As far as the real affairs of the State are concerned, nothing has been done for the people. We have never heard of Yuan doing anything to strengthen the national defence or making any attempt at preparing for the international struggle of finance. What he has actually done is to invite the derision of Friendly Powers by the exercise of short-sighted cunning and vain tricks. No wonder that we have been defeated at every turn in matters diplomatic. Internally, he has never paid any respect to the welfare of the provinces and local centres or sympathised with the sufferings of the people. Robbers have been over-running the country, yet he has failed to suppress them. People have been unlawfully harassed, yet he has failed to deliver them. Education has been neglected, while the restoration of old institutions has been advocated. All the money-making industries have been monopolised by the officials and turned into official enterprises. The policy of the Ch'in dynasty to "keep the people in ignorance" has been followed and the doctrine of Hung-yang, who affirmed that the people should be made to pay all expenses of the sovereign no matter what the conditions be, has been obeyed to the letter. Laws and regulations are as numerous as the hair on the back of a cow; but an order given in the morning is often changed in the evening. If the law-maker himself can break the law as often as he likes, how can the people have any definite principle to follow?

The spirit of law, therefore, has been destroyed. In the employment of men, those are accepted who are unscrupulous and cunning. Patriots have been shunned and capable men have been placed under suspicion. If one is as pliable as a weak concubine, he may expect a speedy rise to high position; but one risks his life, if he shows that he is "stubborn in the right." Thus manly spirit has been smothered and the sense of self-respect abased to the dust. The vitality of the nation has thus been drained. These things are known and seen by myriads of eyes; and, verily, they are worse than the evil deeds of the Tsing dynasty. We, citizens, holding that it was not well to attack the administration and excusing Yuan in the belief that it was not an easy task to establish an efficient Government, drank the bitterness and bore the pain without a murmur, hoping that a day might yield us good results.

For several years we have, therefore, hoped uninfluenced by prejudice. We were beginning to believe that as internal disturbances had been suppressed and power had been centred in a single hand and pressure from foreign countries was relaxing Yuan would fulfil his repeated avowals of faithfulness to the nation and, by eating bitterness and living a life of real action, save our people. Who could have imagined that he would so disregard all else except to seize the Imperial Vessels and indulge in the pleasure of bearing an Imperial title? Who could have imagined that he would have broken the oath uttered by his own lips and violated the Constitutional Compact which he made with the people? Internally he has deceived the people; and externally he has been false to the Foreign Powers. He gave inspiration to his "hunting dogs and eagle" and spread his "teeth and paws" [conspirators] throughout the land to the end of coercing the people and compelling them to obey his orders. To the heart-to-heart advice of good men he has shut his ears, refusing to listen. And any expression of real public opinion is taken as proof of sedition. Consequently the fires of hatred have been fanned, while the general public are all in a state of unrest. Farmers have forsaken their fields and merchants have ceased to trade. Travellers are deprived of their privilege of freedom of movement, while scholars are compelled to satisfy themselves by sitting in the "wilderness." Officials, who have regard for morality, have left the Government one after the other, while crouching desperadoes and ambitious military men have been watching for a chance to rise.

Matters have gone so far that the Foreign Powers have been interfering with our internal affairs and three times they have given us "advice." Besides making the declaration that they would maintain strict vigilance, it is also said that they are making preparations "for free action" in the matter. To confess that the situation has necessitated the interference of the Foreign Powers in our internal affairs is indeed a humiliation, great and grievous. Who then is responsible for our being in such a position? Yet he that is responsible still pursues his iniquities and is working to realise his insatiable ambition. If he should happen to have so much self-respect to refrain from offering a portion of the land to another country and styling himself as the latter's adopted son as in the case of Shih Chin, he will follow, be assured, in the footsteps of the Tsing dynasty and encourage people like the Boxers to drive out foreigners. If he should adopt any one of these alternative courses, China would be thrown into the bottomless abyss—without hope of deliverance.

Has not the ancient Sage said that "a traitor is a criminal punishable by any one?" How then can we let pass the high treason committed by one who has been placed in the position of Chief Executive by the citizens? China may be said to be dead and buried, if nothing is done to punish such an one, whose crimes are plain and whose secret transaction in high treason is about to be disclosed. Behold, can we hope to live if we suffer our country to perish? Then, is it an easy matter to stand as an independent-nation in this world? Even a country whose people are united in their efforts to improve their administration may be in danger of becoming a prey of other countries if their progress should be delayed for a moment; how much more dangerous then is a country which endeavours to sail up the stream in a mediaeval ship with a pilot of Asiatic cunning who has no other aim but to usurp power and position? Any man of common wisdom must know it to be a hopeless task to expect the consolidation of the country under the direction of such a man.

Since Yuan has shown himself to be entirely false to his own duties and ignorant of the general tendency of the world, and since a period of several years' experiment has resulted in a mass of criminal evils, blackening our history, we can no more be tolerant towards him. Even if he had in him sufficient regard for the mere name of Republic to lead him to abide by the existing form of State, there would be no way by which his methods could now be controlled; since he has seized power to do as he pleases. The consequence of his continuance in power would be that the vitality of the country would be sapped until a great disturbance breaks out and the country disappears in the night of history. Is there any hope of one who in these hours of imminent peril seeks to satisfy his unholy desire for Imperialism? Such an one is like a son, who, watching his parents in agony on their sick-bed, puts them to the sword.

During the last few months—as a result of terror struck into the mind of the people—many messages have been sent to the Central Government asking Yuan to ascend the Throne. It is pretended that these messages are a real expression of the will of the people; and the same are used to invite public admiration and to serve hereafter to cover his guilt and mislead the verdict of history. In reality, however, the reason why the high officials have submissively yielded to the whim of this one man is because either they have no wish to set the country in a revolution or they wish to bide their time, while outwardly and temporarily acquiescing in his doing. Can we expect them all willingly to submit themselves to the humiliation of being traitors or becoming distraught out of love for this enemy of the Republic? We who write this have been either holding office in the Central Government or officiating in the provinces in responsible positions. In position we are already honored beyond merits: we therefore do not hope to gain anything more so far as our individual interests are concerned. Nor are we deliberately inimical to Yuan, who has been our colleague for many years. The reason which prompts us in our action is the imminent danger to the country whose life hangs, as it were, by a single hair. The country's welfare is the responsibility of every individual; and for this reason we have in tears repeatedly tendered our sincere advice in the hope that the situation may be saved at the eleventh hour. Unfortunately the individual in question has shown no sign of repentance and thus the millions of people remain in uncertainty as to their future.

In accordance with the provisions of the Constitutional Compact, we now proclaim his crimes and despatch a punitive expedition against the Traitor with a view that peace may soon be restored to this country. In raising the Banner of Righteousness we have four aims in view:

1. To do our utmost in order to maintain the Republic and to see that Imperialism shall never rear its head again in China;
2. To limit the power of the Central Government so that the people of each individual locality (province) may have their freedom of development;
3. To establish a real and genuine constitution in accordance with the tendency of the world; and
4. To strengthen diplomatic intercourse by following a policy of sincerity so that China's standing among the world powers may thereby be raised.

These four aims shall direct our movements and actions in future. As to failure or success we leave it to the will of Heaven; for we believe Heaven will bless Chung Kuo if we follow the dictates of our conscience and the call of righteousness. We hereby open our hearts to the world and send this call to the whole country.

(*Signed*) Tang Chi-yao, Jen Ko-cheng and Liu Hsien-shih.

They also issued a manifesto to the foreign Powers, which was couched in the following terms.—

Manifesto to Foreign Powers

Manifesto from the Yunnan Military Government of the Punitive Army Representing Republican China against high treason to the Friendly Powers, greeting: It is the bounden duty of every nation in this world to act in conformity with the principles of fairness and civilization in order that the people may show their good qualities and perform their part towards the uplifting of mankind. Harmonious co-operation between China and the foreign countries as well as that between governor and governed must be built upon the solid foundation of sincerity and fairness. During the last years of the Tsing Dynasty the misrule of the country was in direct contravention of the modern principles of government; and in consequence our citizens inaugurated a new regime and established the present republican form of government.

Yuan Shih-k'ai professed his attachment to the new government with the selfish object of advancing himself to the office of President. Twice upon accepting the office he swore before the people of China and the foreign nations that he would be faithful to the Republic and that he would strictly observe the constitution. Notwithstanding this, he has during his administration and on divers occasions set the constitution at naught; and had not his despotic rule endangered the very existence of the state, our people would have borne it with patience in order to see the result of his administration.

But during the past four years he has exercised his powers in the most arbitrary manner, and has had recourse to vile intrigues and most unscrupulous methods with the result that public opinion has been suppressed and good and peaceful citizens put to death. Indeed, his abuse of power has even gone to the extent of tampering with the conscience of the entire people. If we examine the results of his administration, we find that he has sucked out the blood of the people and has rendered their lives miserable for the purpose of gratifying his tyrannical ambitions. Should this state of things be suffered to continue for any length of time, no trace of humanity will be left in China. Moreover, his policy towards the foreign powers has been one of deceit and trickery, in consequence of which our country has entirely lost her prestige in the family of nations.

A great civil commotion has become inevitable which will give cause for anxiety to the friendly powers. Instead of repenting of his crimes Yuan Shih-k'ai has now even dared to violate his oath of office; he has surrounded himself with partisans; he has deliberately misrepresented the people's will and has made himself emperor, overawing the people on the one hand and imposing upon the foreign nations on the other. He has been advised in vain to follow the path of sincerity and righteousness, and every means of making him abide by the constitution has been tried without result. This Military Government cannot but look with commiseration upon the destruction of human principles and the end of our national existence, and has therefore solemnly resolved to mobilize all its forces to punish the traitor who has rendered himself guilty of violating his oath of office, setting the constitution at naught, of bringing disaster to the people, and of usurping the powers of government. All patriotic citizens, whether Northerners, and all military and civil officials, whether they belong to the Moderate or the Radical Party, have agreed after mutual consultation to proclaim the justice of our cause.

Now that we have been forced to take up arms to defend and preserve the Chung Hua Republic to which all official recognition has been accorded by all the friendly powers, we earnestly hope that they will have pity on our plight, recognize our cause, and appreciate the justice of our acts. We do hereby publicly declare that all treaties and agreements concluded with the friendly powers prior to the date of the proclamation of our righteous cause against high treason, to wit, the month of December in the fourth year of the Republic of China, shall continue to have full force and effect, and that within the jurisdiction of our Army we shall assume responsibility for the protection of foreign lives, commerce, and missions as well as for the due performance of all treaty obligations. All foreign relations shall henceforth be conducted between the representatives of this Military Government specially authorized in that behalf and the foreign ministers and consuls.

This Military Government further declares before Heaven and Earth that from and after this date it will do everything within its power to govern the country in harmony with the principles of civilization, so that our people may enjoy real blessings of republicanism; and will also conduct our foreign policy with frankness and sincerity, so that our relations with the friendly powers may become closer and more amicable. Heaven witnesseth this our solemn declaration.

Yunnanfu, December, 1915.

The first Mandate issued by the Emperor-elect gave the Republican leaders a chance of withdrawing from the situation in which they had placed themselves without incurring serious consequences. As the opportunity was not embraced a second edict was issued on January 5, as follows:—

Some time ago the Tsan Cheng Yuan in its capacity of the Acting Li Fa Yuan sent a memorial to the Throne reporting that Tang Chi-yao and Jen Ko-cheng [the Chiang Chun and Civil Governor of Yunnan respectively], rebelled with their troops, and requesting that a punitive expedition be sent to punish them for their crimes, etc. Again telegrams have also been received from Chiang Chuns and Governors of various provinces stating that Tsai Ao and others have despatched a circular telegram to them agitating for rebellion, and requesting that they be punished, etc. Recently we thought that there were some special circumstances, and a mandate therefore was issued depriving Tang Chi-yao, Jen Ko-cheng and Tsai Ao of their respective ranks and offices pending investigation and trial. Now we are in possession of reports from various localities on the frontier, advising us that Tsai Ao some time ago proceeded secretly with rebel accomplices to Yunnan where he enticed and coerced the chief officials and a portion of troops in that province to rebel against the Central Government. They have destroyed the unity of the nation, declared independence and despatched troops to invade Szechuan. Those who opposed the seditious plot have been murdered, and the rebels have assumed authority and appointed officials. The people in the province have planned to oppose them, but on account of the rebel influence they have had to shed secret tears and remained silent. These rebels have deliberately put forth lies and rumours which have spread to various localities. They say that such and such provinces have joined them, and that a certain Foreign Power had secret designs against the nation, etc. They try to deceive the people and create international ill-feelings. All these rumours and mis-statements are without foundation. It must be pointed out that the troops and people of the provinces are obedient to the orders of the Central Government and willing to maintain and assist the Government; and that all friendly nations, being anxious for the peace and order of the country, have maintained a friendly attitude towards us and there is no room left for the rebel tang to make misrepresentations.

When there were signs of trouble in Yunnan, the Central Government and the high officials of the provinces sent telegrams to the rebels giving them advice to desist from their plots. Piles of documents were sent to them in earnest terms to persuade them, but as the mind of the rebels was fixed they gave no ear to the advice. They, a handful of wicked men, have dared to defy openly the Will of the People as expressed in the Law lately passed by the People of this Nation. They have disregarded the proper decisions of the Government and the faithful advice of their colleagues. They are heartless and extremely mad. Some of these rebels were the promoters of the change of the Kuo-ti, while others were men who repeatedly sent in petitions requesting the accession to the Throne. But in a few days' time they have completely changed their ideas. Their faithlessness has indeed defied the power of description. No doubt, in the beginning of every Dynasty, there have been wicked men of dangerous mind, trying to raise rebellion under some pretext; but we have not had any previous case of wickedness, faithlessness and seditious nature like that shown by these rebels. Originally there were not the least seditious desires among the people of Yunnan, and most of the troops understood the righteous cause.

Moreover, it must be observed that Yunnan is a most indigent province and the people have found it difficult to obtain means of livelihood. There is only a number of about 10,000 troops in the province, whose monthly pay has been a constantly difficult problem to solve; and we have no need to express any anxiety for the situation as the rebellion is sure to end in failure. In consideration of the condition of the people and troops of Yunnan, the Central Government has not the least desire to send troops to suppress the rebellion; but should we allow these rebels, who trust in their geographical advantage and the distance from the Central Government, to have their own way and continue to occupy the territory, my people there will be afflicted, the neighboring provinces will be affected, the general situation will become critical and occasions will be offered to foreigners for interference. We have considered over carefully the various aspects of the question, and it is impossible to tolerate them and so set aside justice and the law of this nation. The Chiang Chuns and Governors of the various provinces are hereby ordered to exercise strict vigilance in devising means for defence and for suppression work. Tsao Kun, the Huwei Chiang Chun, is hereby ordered to proceed with his troops to Yunnan, and to station them at strategic points pending orders for operation. Only those few who are promoters of the rebellion will be held responsible by the Central Government for their crimes, and all those who have been forced or coerced to follow the rebels shall not be punished provided that they repent of their errors. Those who hold right principle from beginning to end without following the rebels shall be rewarded. As most of the inhabitants of Yunnan province are innocent, measures should be taken to give them proper relief and they should not be allowed to lose their occupation, etc. Thus my real idea regarding the punishment of crime and the pacification of the people will be made manifest.

Another Mandate was simultaneously issued in which the Emperor-elect explained his own position. He ridiculed the idea that the attainment of Imperial power was a source of satisfaction to him; it burdened him with enormous responsibilities. However he had bowed to the will of the people. The change in the form of government was made with the hope of securing good government and permanent peace. The Mandate concludes.—

However, men like Tsai Ao and others, whose hearts have been burning with desires for privileges, have purposely spread rumours to agitate the people. They are not ignorant of the poor condition of the people and the difficult situation of the country; and yet they have ventured to realise their great desires, hoping for success. They care nothing if the people be drawn into misery or the nation be destroyed. But they have failed to see that if the nation should perish what would be the good of contending for authority and privileges. The people of the country have long ago foreseen the action of these rebels. Fortunately as their plots have been revealed at an early date, it is easy to suppress them at any time.

The officials and people of various provinces have now declared unanimously, the Citizens' Representatives of the country have already decided by unanimous votes that the form of the State should be a Constitutional Monarchy, and that they should all submit to one Supreme Chief; therefore the fundamental Plan of the Government should never be changed at any time. There is now no room left for the discussion of the problem. We hereby request that the accession to the Throne should take place soon. Destroy the rebels quickly, as we are all filled with righteous indignation, etc. Although there are tens of thousands of tongues, the same thing has been advocated. As the people of the country have recommended me, a man of "thin virtue," and the Generals and Officials have honoured me, how dare I hesitate any more and bring disaster upon the whole country?

Should there be any who becomes a leader of rebels, I will deal with him according to law so as to avenge the people. The Chief Civil and Military officials of the various provinces are hereby instructed to issue strict proclamations for the plain information of the people. The latter should be taught to distinguish the right and the wrong causes; and to love their life and family so that they will not be misled by rebels and become involved in knavish plots. The high officials of various provinces, who are able to preserve order and tranquillity in their respective localities, and military men, who fully understand the righteous cause, are responsible for the protection of their respective localities; and it is hoped that they will encourage one another in a sense of patriotism and perform their duties satisfactorily. Thus my heart to regard the people as if they have been wounded, and my desire to impress the foregoing in mind of the people by repeated warnings, will be made manifest.

At a session of the Council of State held on January 7 a petition asking the Emperor to fix a definite date for his formal enthronement was unanimously adopted. At the same session the recommendation telegraphed by Mr. Lung Chien-chang, the Governor of Kweichow, that the question of the change in the form of government should be reconsidered by the Citizens' Convention, was brought up. It was decided to dispatch a telegram in reply of which the following is the translation made by the *Peking Gazette:*

Your telegram has been received and perused. As a result of a special meeting of the Tsan Cheng Yuan convened to discuss its contents we have decided to send you our views as follows.

The contents of your telegram amount to nothing more or less than asking for the cancellation of the *fait accompli* of a constitutional monarchy on account of the trouble in Yunnan, a course which is not unlike treating affairs of state as a game of chess and the State as a toy. The arguments are so poor and the words so unreasonable that they are in truth not worthy of discussion; but the latter part of the telegram, in which it is proposed either to submit the question for the reconsideration of the Citizens' Convention or officially to cancel (the restoration) "with one word" from the Chief Executive, conveys the idea that the settled question of the change of Kuo-ti can really be reconsidered and another experiment made. Such an idle argument not only treats the law lightly but it is feared that it will also disturb the minds of the people. This Yuan, being the highest legislative organ of the country as well as the principal representative of the Convention of Representatives of Citizens, find it impossible to remain silent respecting this matter. Our duty compels us to correct your erroneous views; and it is hoped that you, gentlemen, will kindly listen to our words. The existence of a State depends on the force of law in maintaining the situation, and law is made by the wish of the people. When the people are asked to give their views on the law they are perfectly free to say whether they are for or against it but once a law is passed and put into execution even the law-makers themselves cannot revoke it. This is a principle adhered to by all nations of all times. Recently the question of Kuo-ti was settled by the Convention of the Representatives of Citizens in accordance with the method fixed by the Legislature, the comprehensiveness and thoroughness of which was recognised and praised by foreigners and Chinese. The procedure was based on the foundation of the Citizens' Convention and its result was based on the will of the people of the whole country. In order to be sure that no factional views of any particular set should gain dominance, the views of the various bodies of merchants in all localities were secured; and in order to insure freedom for the expression of opinions, the provinces and the various bodies were allowed to cast their votes freely. As a consequence of such a comprehensive and safe method to settle the exceedingly important question of Kuo-ti, the whole country willingly agreed and no opposition was raised. Yet to our great surprise you have recommended the reconsideration of the question without any good reason and the suggestion is made after the change of the Kuo-ti has been officially announced. Such a fickle attitude is never heard of even at times when an order issued in "the morning is changed in the evening." If the will of the people were as changeable as summer rain and autumn cold it could not be changed so quickly as this.

Furthermore, the Convention of Representatives of Citizens was composed of representatives elected by successful candidates of the primary election of the Citizens' Convention. These two bodies bear different names, it is true, but their composition is practically the same. Now is it not an absurdity to trust the Members of the Citizens' Convention elected by the successful candidates of the primary election but to distrust the "representatives" of the Convention of the Representatives of Citizens elected by the same body of men? In some modern countries the Constitution cannot be altered within a definite period after its final passage. If the Constitution must be so treated how much more should the Kuo-ti be? If your telegram be accepted then the will of the people can be changed at any time and the law revoked any day. How could we show our trustworthiness to the world and place the country in an unshakable position if we were to act thus? This is the reason why the question of Kuo-ti cannot be submitted to the Citizens Convention for reconsideration.

As to the Chief Executive of a republican country, he is only an instrument through which the will of the people is put into execution. The sovereign right of a republican country is vested in the people. This is laid down in the Constitutional Compact as plainly as the rays of the sun and the light of the stars. The change of Kuo-ti is, therefore, based on the will of the people and not in the least on the views of the Chief Executive. Indeed, the Chief Executive during the process made some declarations which were unsuited for the occasion; but these remarks were the sincere views of an onlooker for the purpose of awakening the people who were the actual principals in the case. This, therefore, cannot be taken as an interference on his part with the question of Kuo-ti. Now since the result of the balloting has shown that the people are tired of the Republic and wish to have a constitutional monarchy, the Chief Executive has been placed in an impotent position. This is the reason why when the Li Fa Yuan reported to him their decision in favour of a constitutional monarchy, the Chief Executive only gave a refusal respecting the position offered him and did not go out of the way to say anything respecting the decision for the Kuo-ti. This is a plain proof that the Chief Executive had no power to interfere with the question of Kuo-ti. Yet in spite of it all and after the failure of the Chief Executive firmly to decline the offer of the Throne, you wish to call on him to cancel the constitutional monarchy now established "by one word." Leaving alone the question that the Kuo-ti has been decided by the whole body of the people and cannot be cancelled by the Chief Executive alone, we must also remember that a Republic of such a nature, even if it be restored, will not be worth maintaining. Considering the wish of the people, they cannot be so fickle as to demand this. This is the reason why the proposal that the Chief Executive be asked to cancel the Constitutional monarchy cannot be entertained.

Your telegram also says that since the reason why the people wished to change the form of State was to secure peace and as the change has proved to be not only incapable of maintaining peace but liable to create disturbance, the will of the people has changed with the turn of the currents of time, etc. Psychologically speaking, there is no standard of measurement to say whether the country is in a sound or dangerous position. Even the signs of the change of the will of the people can hardly be discovered in facts. We need not discuss the point that the great and important question of Kuo-ti, recognised by the representatives of the whole country as safe and solemnly passed, cannot be suddenly cancelled simply because a few provincial authorities regard it as dangerous. Indeed the actions of you, gentlemen, are not entirely unconnected with the change in the minds of the people from a sense of safety to one of fear of danger. The change itself is, therefore, not responsible for the precarious situation. The reason is that when the question of Kuo-ti was first settled, the people within the seas rejoiced in thundering voices, being of the opinion that as the evil system of the Republic has disappeared it would not be difficult for the State to secure stability. Who could have imagined that even while the ceremony of enthronement was still in process of preparation and foreign recognition negotiated for, the news of the rebellion in Yunnan would reach our ears. That on which the people have relied for peace is now actually showing signs of possible danger. Except for the fickleness of Tang and Jen, there would have been no obstacle to the renewing of the form of State. There is, therefore, no question of doubts on the part of the people. It is no exaggeration to say that it is Tang and Jen who have caused the people to doubt and fear.

You gentlemen have received innumerable graces from the State and thoroughly understand the great principles of righteousness. The province of Kueichow, owing to its proximity to Yunnan, is in a dangerous position. In our humble opinion you should have marched your troops to Yunnan and punished the rebels on the first news of the trouble in that province or you would have done well if you had strongly held the strategic points on the border so as to isolate Yunnan, a step which would have brought an early termination of the Yunnan rebellion. Instead, you have blamed the Central Government for the rebellion in Yunnan as if you have been afraid that the trouble in Yunnan was not affecting other localities fast enough. In this we, members of the Yuan, cannot bring ourselves to agree with your views.

Since the outbreak of war in Europe, China has been in a precarious position and her dangers have reached their climax this day. You gentlemen are all well-known patriots. Even if you should disagree with the policy of the Central Government, you should temporarily forget the same and co-operate in placing the country on a sound foundation and should not create fresh disagreement and thus hasten the downfall of the country. Remember the proverb that the fisherman profits when the oyster-catcher and clam come to blows. We shiver when we think of this. We have said all we wish to say and hope that you will give our words careful consideration.........

(*Signed*) Tsan Cheng Yuan in the Capacity of the Legislature.

Subsequently Mr. Lung Chien-chang was dismissed from his post and ordered to come to Peking for trial and punishment. The reports received from the southern and south-western provinces during the early part of the month were reassuring. In some districts in Kwantung bandits attacked Customs stations and defenceless villages, but the troops remained loyal and the Military Governor reported that there was no ground for alarm.

No sympathy with the revolters in Yunnan was expressed in any responsible quarter in China, but as might have been expected, the rebel organs published in the foreign settlements and concessions professed to believe that the leaders of the revolt were animated by the purest patriotism. In Peking itself *Shuntien Jihpao*, a Japanese owned paper printed in Chinese, brought itself into notoriety by making grossly offensive personal attacks upon Emperor Yuan. Day after day the paper in question published false reports obviously designed to cause unrest and embarrass the Government. Owing to the incidence of extra-territoriality the Chinese authorities were unable to prevent this rebel propaganda from being carried on and a request to the Japanese Legation to take some action met with no response. This was in striking contrast to the action of the Chinese Government when the Japanese authorities directed their attention to some offensive remarks published by a Chinese newspaper in reference to Count Okuma. Heavy punishment was at once inflicted upon the offenders.

Although in itself not directly associated with the subject with which this article treats, reference must be made to a Mission to congratulate the Emperor of Japan upon his coronation that the Chinese Government proposed to dispatch. The Mission was to be headed by His Excellency Chow Tze-chi, Minister of Agriculture and Commerce. The Japanese Government apparently welcomed the decision to dispatch this Mission, and great hopes were entertained that it would result in improving the relations between the countries. All the arrangements were completed and some members of the Mission had already left Peking for Japan, when Mr. Hioki, the Japanese Minister in Peking, on January 16, the morning after he had entertained Mr. Chow at a valedictory dinner, announced that he was instructed by his Government to request the postponement of the mission. The reason assigned was that certain inconveniences were prevailing at the Japanese court. The view taken by the Chinese authorities is that, owing to the circulation of rumours by unscrupulous journalists, both Chinese and Japanese, an entirely erroneous impression was created about the Mission. Although it had no political bearing whatever, Chinese rebels and their sympathizers declared that the Chinese Government was sending Mr. Chow to offer special privileges to Japan in return for the recognition of the Empire. In view of the fact that these rumours had gained wide credence in Japan, and that an attempt had lately been made to assassinate Count Okuma, the Japanese Government feared that there might possibly be outrages on the part of Japanese and Chinese revolutionists. The Chinese Government in postponing the Mission has expressed its appreciation of the good-will shown by the Japanese Government. One good result of the incident has been that it has completely refuted the rumours that special privileges were to be offered to Japan.

Telegrams urging the Emperor to ascend the Throne without delay continued to pour into Peking. Among those who counselled this step were the Urga Hutukhtu and over 100 of the Mongol princes.

Republican Appeals to Foreign Ministers

The Republican, or what is now called the rebel leaders and partisans, are leaving no stone unturned to secure foreign sympathy or at least neutrality, and to this end have addressed communications to all the foreign Ministers in Peking. About January 22 the following identic communication was received from the Yunnan Chiang-chun Tang Chi-yao and the Civil Governor Jen Ko-cheng:

The Wuchang revolt broke out on October 10, 1911, and the different provinces followed the lead because the people of the country had long suffered from the oppression of monarchical government. They therefore rose up in a revolution over the question of the form of government. Recognition of belligerency was extended at this time by the friendly powers and neutrality proclaimed. The provisional Government was set up at Nanking and a government of the people established. The Manchu Emperor abdicated, the Republic was formed, and notifications were sent to the friendly powers. Later, when the regular assembly had been established and the organization of the government had been completed, recognition was extended separately by each of the friendly Powers who thereby earned the deep gratitude of the people of our country.

Unfortunately the present President of this country, Yuan Shih-kai, plotted to overthrow the Republic in opposition to the progressive sentiment in the country, against the advancement of civilization in the world, contrary to the promise of his oath of office, and without regard for the advice of the friendly Powers. We, Chiang-chun and Governor, in order to show respect for the Constitution and uphold the Republic, have despatched a loyal army against the national outlaw. We hope that the friendly Powers will maintain a benevolent neutrality that thereby the mutual friendship of long standing may be strengthened.

With compliments.

The Treaties entered into between the Republican Government and the Manchu Government and the different nations before the question of the Imperial form of government was raised will all continue in force and responsibility for indemnities and loans will be maintained as before.

We, the Chiang-chun and Governor, will be entirely responsible for the protection of the lives and property of the nationals of the different Powers residing within the limits over which we exercise control.

The Republic will not recognise any treaties, agreements, loans, etc., entered into between Yuan Shih-kai or his government and the different nations after the question of the Imperial form of government arose.

In case any of the Powers assist Yuan Shih-kai's government with contraband of war the same will be confiscated upon being discovered.

If officials, merchants, or people of the different nations commit acts to assist Yuan Shih-kai's government and injure us, the Chiang-chun and Governor, opposition will be offered.

Sealed By Chiang-chun of Yunnan Province.
Sealed by the Governor of Yunnan Province.
31st day of the 12th month of the 4th year of the Republic of China.

An identic communication as follows was received by Foreign Ministers early in January. It was signed by twenty ex-members of the National Assembly of the Republic of China, which was abolished by President Yuan Shih-kai on September 4, 1913;

We, the undersigned, respectfully beg leave to address the following communication to their Excellencies the Ministers of the Friendly Nations:

Yuan Shih-kai, ex-President of the Republic of China, by proclaiming himself Emperor, has brought disaster and ruin to the country. He has not only lost the confidence of foreigners but has also made himself the common enemy of the people.

Our fellow citizens in Yunnan and Kweichow have taken up arms with a view to bringing him to justice. Our righteous cause cannot fail to meet with response everywhere. He is now unable to cope with the popular movement.

According to newspaper reports he is willing to sacrifice our national interests in order to induce foreigners to recognise him as Emperor. This is giving rise to great consternation throughout the land. It is self-evident that no grant or concession to any foreign Power can be valid as against the Republic of China unless made in a legal manner by the Government of the Republic of China with the advice and consent of bona-fide representatives of the people. By usurping the Throne Yuan Shih-kai has *ipso facto* lost the qualifications of Chief Executive of the State. All dealings, therefore, between him and foreigners are his private affairs and cannot be considered as binding upon the people.

Since the establishment of the Republic our citizens have been brought into closer and closer relations with the friendly nations and great benefits will be derived through harmonious co-operation between China and foreign countries. We fervently hope that the Governments of the friendly Powers will not deliberately alienate the good-will of the whole nation by giving support to a tyrant.

We ask the favour of your transmitting this communication to your respective governments and peoples.

Respectfully submitted by (Signed) Ku Chung-hsien and Sun Hung-yi of Chihli; Li Shu-ying and Chao Shih-yu of Shensi; Pang Kai-shih of Hupeh; Pang Yun-yi, Chen Chia-hui and Ao-yang Chen-hsing of Hunan; Lan Kung-wu of Kiangsu; Wen Chun and Wang Han of Kiangsi; Tu Sze-yeh and Yin Yu-li of Chekiang; Wang Chien-kang and Wang Lu-pang of Anhui; Lin Shen of Fukien; Hsu Fu-lin and Yang Yung-tai of Kwangtung; Lan Tsin-yung of Kwangsi; Chang Yao-tseng of Yunnan, Members of the National Assembly of the Republic of China.

In our last issue we inadvertently omitted to acknowledge the source of the translation of documents connected with our article on the monarchy movement, which was the *Peking Gazette*.

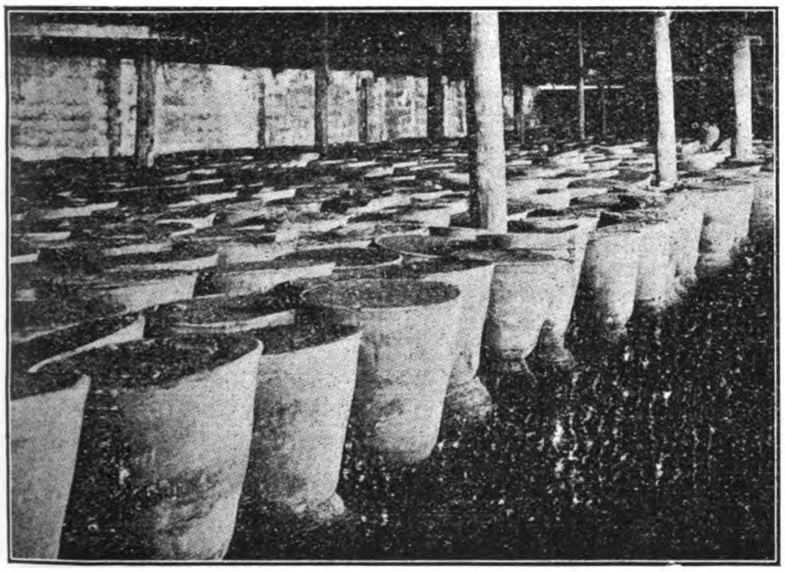
SUGAR INDUSTRY OF PHILIPPINE ISLANDS

(By C. W. Hines, Sugar Technologist, Bureau of Agriculture, Manila, P. I.)

The production of sugar in the Philippine Islands for the year 1914 amounted to 370,000 long tons, the majority of which was made into the molasses type of muscovado sugar and sold under the name of "bayon" or "mat" sugar, "pilon" sugar and "panocha" sugar. In addition to this there was a considerable amount of centrifugal test sugar made as well as some high grade sugar from one refinery here.

"Bayon" (Mat) Sugar

This is molasses sugar packed in "bayones" or palm leaf bags and for this reason is designated as mat sugar. The method followed in the making of this class of sugars is very simple, consisting only of clarifying the juice by the aid of a small quantity of dry slaked lime, and concentrating it in a battery of iron kettles during which time the lighter impurities rising to the surface are removed. The boiling juice is dipped from kettle to kettle until the final concentration is made in the last member of the battery. When this material has reached a heavy "string proof" it is dipped into a large shallow box or crystallizing tray and stirred about during cooling. In this manner a pulverized yellow or dark product is secured, the quality of which depends upon the original condition of the juice and the class of work during boiling.



Pilon Sugar in Store for Crystallization

These mat sugars are graded on polarization and are classed as follows:

No. 1 which polarizes 87 degrees or over.
No. 2 which polarizes 85 degrees to 86.9 degrees.
No. 3 which polarizes 82 degrees to 84.9 degrees.
No. 4 which polarizes 80 degrees to 81.9 degrees.
No. 5 which polarizes 76 degrees to 79.9 degrees.

Sometimes there is made a No. 6 or "Corriente" sugar which is a very low grade of molasses sugar.

Comparatively small amounts of these mat sugars, especially of the lower grades, find their way to the American refineries on account of their poor quality, and even then they are accepted only when there is a scarcity of centrifugal sugars to supply the demand.

"Pilon" Sugar.

In some sections of the Philippines, mainly in the provinces of Pampanga and Tarlac, there is used a peculiar container which is known as a "pilon."

This is a bell-shaped earthern jar varying in capacity from 130 to 180 pounds of crude sugar. It is about two feet in height and one and one-half feet in diameter at the top. In the bottom of each of these jars is a hole about two inches in diameter, through which the molasses drains away from the crystals. When the sugar is placed in these containers a few pieces of bagasse or some clay is first placed in the bottom to prevent the heavy sugar solution from passing through and being lost.

The method followed in making this sugar is identical with that previously described, except that instead of dipping the heavy mass into a shallow box and constantly stirring until crystallized as is done with the bayon sugars, it is dipped directly into the pilones and set over smaller earthen jars of about one and one-half gallons capacity and left there until the sugar is to be transported to market.

This kind of sugar is largely used by the Chinese of Manila in making a semi-refined sugar called "Caramelo." The crude process of refining begins before the sugar is removed from the earthen jars. A layer of clay is first applied to the top and kept saturated with water, which assists in washing away the molasses adhering to the crystals and also to a certain extent in bleaching them.

Chinese in Manila making "Caramello" Sugar

The jars are then broken from the large lump of sugar, after which the white upper portion of sugar is dissolved, clarified with milk of lime and whites of eggs, and finally re-crystallized during constant stirring.

The crystallized mass is then cut, while still hot, into loaves and is used as a coffee sugar. It is not uncommon to find these sugars fairly white in color and polarizing over 99 per cent.

"Panocha" Sugar

This peculiarly shaped sugar cake is made by molding the heavy massecuite into semi-spherical cakes when it has nearly cooled. Cocoanut shells are usually used as molds for this purpose, but sometimes metallic cups are also used.

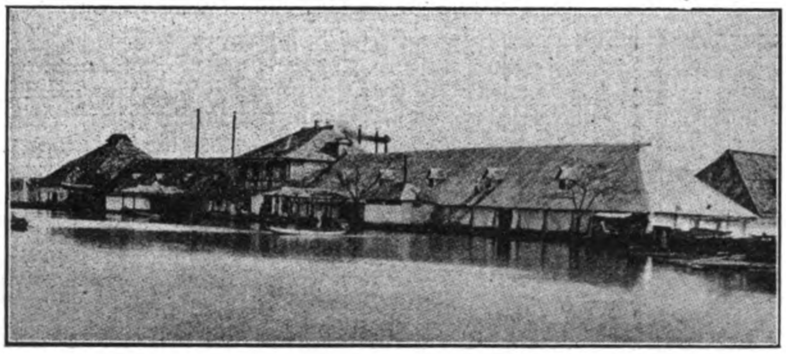
The clarification and evaporation work for this sugar is identical with that used for the "pilon" and "bayon" sugars. After the boiled liquor has reached a heavy density so that it will crystallize upon cooling, it is lifted from the fire and stirred about in the kettle until it has begun to crystallize and may be molded into form.

This sugar is largely used by the natives for home consumption. During the past year more than twenty-four thousand tons of this sugar, or about 6 per cent of the total sugar production, was consumed in this form.

Centrifugal Sugars.

In addition to the old mills turning out crude sugars there are now located in the Islands a number of factories producing first centrifugal or test sugar. The past year marked the completion of the largest of these factories which is located at Canluban in the province of Laguna, about 35 miles south of Manila. This factory has a capacity of 1,200 tons of cane in 24 hours. The next largest factory is located at San Jose, near the southern end of the Island of Mindoro, with a daily capacity of 800 tons of cane. San Carlos in Occidental Negros ranks third with a capacity of 600 tons of cane per day. This factory started grinding only last year and is arranged so that it may readily be enlarged to more than double its present capacity. In fact, a material increase in the capacity of this factory will be made before the next grinding season

In the following list may be found a number of smaller factories; their locality and daily cane grinding capacity in long tons:



Luzon Sugar Refinery, Located at Malabon, six miles from Manila, Philippine Islands

Philippine Develop. Co., Calamba, Laguna ..	300
De la Rama Central, Bago, Occidental Neg ..	300
Guanco Central, Hinigaran, Oc. Neg	300
Carmen Central, Calatagan, Batangas	250
Pia Eugenia Cent., Tigbawan, Iloilo	200
Cabacalan Factory, Cabacalan, Oc. Neg	150
Dinaluphian Factory, Dinaluphian, Bataan ..	125
Canloan Factory, La Carlota, Oc. Neg	100
Talisay Factory, Talisay, Occ. Neg	100
Muntinlupa Factory, Muntinlupa, Laguna ..	90
St. Louis Oriental, Manaoag, Pangasinan ..	70

In addition to the factories making crude centrifugal sugars there is one refinery, the Luzon Sugar Refinery, located in Malabon, Rizal province, about 6 miles north of Manila, which has a capacity of 25 tons of finished sugar per day. This factory turns out a beautiful white granulated sugar and uses for this purpose three classes of local sugars, viz., centrifugal test sugar, bayon and pilon sugars.

There is more or less sugar produced all over the Philippine Islands, but the Industry is developed along modern lines in only a few localities. Vast fertile areas are found in many sections which will some day become productive sugar regions. Many of these are now used for a single harvest of rice each year or lie fallow.

The following list shows the provinces which now produce sugar:

Province	Hectares.	Metric tons.
Occidental Negros	51,772	148,069
Pampanga	31,576	63,255
Batangas	13,816	22,007
Iloilo	13,208	34,355
Tarlac	7,164	15,806
Ilocos Sur	5,534	7,912
Cebu	5,103	10,500
Oriental Negros	4,594	12,136

Equivalents—The hectare equals about two and a half acres. The metric ton is only 35 pounds less than the long ton used in the U.S.

The above is a partial list from the chart prepared by the Bureau of Agriculture and does not, in all cases, show the total product of the sugar cane from the indicated area since there are omitted the columns showing the amount of basi (an intoxicating beverage) and the quantity of molasses produced from the cane juice. These amount to a considerable quantity in some sections of the islands.

The yearly export of sugar for the past sixteen years may be seen from the following table.

Year Ending June 30	Metric tons.	Year Ending June 30.	Metric tons.
1899	57,447	1907	120,289
1900	78,306	1908	151,712
1901	56,582	1909	112,380
1902	67,795	1910	127,717
1903	111,647	1911	149,376
1904	75,161	1912	186,016
1905	113,640	1913	212,540
1906	125,794	1913 (July to) (Dec.)	65,383
		1913 (Cal.) (Yr.)	236,498

It will be observed that the exports of sugar have grown each year until 1914 marked the maximum with 236,498 tons.

This increase is due largely to the development of new plantations and the adoption of more modern methods during recent years.

CENTRALS FOR PHILIPPINES

Specifications for the P2,000,000 sugar central to be built at Isabela, Occidental Negros, have just been completed by the government sugar central board. The mill will be a 1,000 ton central of the most modern type, driven by electricity, and bids have already been called for.

An organization of Capiz planters embracing 10 of the most productive haciendas in that locality, has applied to the sugar central board for government aid in the construction of a sugar central to have a grinding capacity of 750 tons of cane per day.

SUGAR PROSPECTS IN FAR EAST

At the present time, writes the U.S. Consul General at Hongkong, sugar prospects in the Far East are much brighter than usual. The Philippines promise a large crop, that of Negros and Panay probably reaching 4,000,000 piculs, or about 266,666 short tons, and exceeding all previous records. The Board having charge of the erection of sugar centrals in the Islands under the new plan of assisting such projects by loans from Government funds has decided to promote the erection of at least one new mill to care for the 1916-17 crop.

Prices of sugar all over the Far East have held up well, the demand in America supplementing the reviving demand in China and India. The Hongkong refineries have been crippled in their operation both by the restricted market in China and other consuming centers, and by the difficulty of securing raw sugar from Java and other producing countries. This has led to an increase in the import of sugar from the Philippines and from Chinese ports. The imports into the Colony for the first half of the current year are placed by commercial interests at 189,133 short tons, as compared with 270,333 short tons during the same period of 1914.

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CONTENTS

	PAGE
End the Philippine Muddle	291
Roads, the Salvation of China	292
Pekin Syndicate's Honan Mine	294
Restoration of Monarchy in China	298
Sugar Industry of the Philippine Islands	305
The Yunnan Revolt	307
Japan's Responsibility for China's Troubles	308
Japan's Latest Insult to China	308
Some Thoughts for China's Benefit	310
Sir Richard Dane	312
The Finance of China	312
China's Budget	313
Revision of China's Mining Laws	313
Redemption of the Hongkong Government Gold Loan of 1905	314
The Fossilised Dragon	314
Forestry Experts for China	314
Open Door in Korea	315
The Seoul Mining Company	316
Java Cane Sugar Industry	319
Likin on Tientsin-Pukow Railway	319
The Chosen Industrial Exposition	320
Chosen Railways Annual Report	322
Electricity in China	327
Trade of Tsinan and Tsingtau	328
Engineering and Financial News	329

THE YUNNAN REVOLT

The all absorbing topic in China at the moment is the revolt of Yunnan against the "will of the people" to have a monarchical form of Government re-established. Opinions as to the importance of the revolt are varied. Those in whom the wish is father to the thought see in it the end of Yuan Shih-kai; others are confident that its development will culminate in the division of China into two separately governed States—North China as a Monarchy and South China as a Republic; while others look for restoration of so-called Republicanism.

The point of view depends entirely upon the locale of those expressing opinions. In Peking the idea generally entertained by the diplomatists is that the affair will "fizzle" out. Belief is firm that Yuan Shih-kai will prevail easily over those who have risen against him, and little importance is attached to what is characterised as "the vapourings of the malcontents who shelter in the foreign settlements and treaty ports." In Shanghai, in Hongkong, and naturally in the southern provinces, quite a contrary feeling obtains. Rumour has full play, and sensational development treads on the heel of sensational development to the entire bewilderment of the casual student of Chinese affairs. The result is the generation of desperate pessimism, and it is only the very few who will apply themselves to a thoughtful analysis of the conditions with the object of obtaining a true valuation of the actual situation. So the north remains placid and the south runs riot with its ideas; the result being reflected through the foreigners in either region.

Very few foreigners are competent to estimate correctly the whole situation, and certainly fewer are able to make a forecast of events with any surety. All, however, are able to, and do make haphazard guesses as to the outcome. The Japanese seem to be the most satisfied that their view of enlarged trouble is the right one. Some of them might be in a peculiar position to know, for among the numerous allegations that have taken wing on the wind are many that numerous Japanese are hand and glove in the enterprise with the object of making tools of confiding Republicans to work their own national ends upon China.

In this connexion it must be remembered that long after the Monarchy movement had been quietly proceeding,—at a time when no foreign legation in Peking had any news from the many consuls scattered throughout China that trouble was liable to break out,—it was the Japanese who approached other nations to proffer the "friendly warning" to China that unless the movement was stopped internal difficulties would arise. Japan may have possessed special means of knowing what was afoot; or she may have been cognizant of the Republicans' plans. Certain it is that she manifests a very touching interest in and solicitude for the welfare of China, particularly when the word welfare is defined as being of distinct and immediate benefit to the Japanese.

What has to be acknowledged is that China is regarded by Japan as under her tutelage, and what chiefly annoys Japan at the present time is that other nations seem obstinately to refuse to admit and accept that condition. Japan's attitude, therefore, complicates the whole of China's internal affairs, especially at such a time as this when Republicans are actively bent upon subverting the Peking government. For this reason more than any other it is impossible to forecast what aspect the revolt in Yunnan may take. Left to themselves it is not likely that the Republicans can overcome the forces at the disposal of Yuan Shih-kai, but given the active if veiled support of Japan they may be able to involve the whole country in devastation such as that which signalised the bloody march of the notorious Taipings. The regrettable and alarming feature is that certain rebel leaders are ready to accept assistance from Japanese to carry out their purpose, apparently failing to realise that for the aid thus loaned the full pound of flesh will be ultimately demanded, nor is any international Portia likely to interpose to avert the calamity involved in the fulfilment of the demand.

Before it is too late the Republicans will be well advised to discard all Japanese aid or proffers of aid in any shape or form, relying on the judgment of the Chinese people for assistance if their cause is right and the best for the country. In 1911 the

revolution which ended in the overthrow of the effete Manchu dynasty was backed by the broad common sense of the people. Because the Manchus had outlived their usefulness, because they were powerless to govern, because they rejected all prayers for reform the vast population of China acquiesced in their overthrow when the revolutionists struck at Wuchang and elsewhere. Conditions are different to-day. The forces who are now fighting for what they call a Republic must have stronger claims for whole-hearted public support than they possessed in 1911. They must not only have a more stirring rallying cry, but they must be able to provide guarantees that they will be able to serve the country better than the men who are working for wider popular participation in government through a constitutional monarchy. Without these their armed protest against the monarchical form of government will be of no avail, and will but serve to plunge the country in misery which will be intensified by pressure from Japan, whose obvious policy is to use any weapon and any combination of circumstances to rob China of her sovereignty and independence. Any loyal and patriotic Chinese would do well to search his heart and discard blind prejudice before he decides to participate in any revolt against the existing government. To make China strong required the united effort of all her people—articulate and inarticulate. Personal feelings should not be allowed to dictate action for a second. In the wreck caused by violent expression of passion the nation may easily go down to oblivion. By wise action, by sagacious foresight, by co-operation for the national good, by patient, peaceful plodding the young Chinese who now profess to believe that China is being injured by the restoration of a monarchical form of government could in course of time have assumed command of the State's affairs, but the lamentable rebellion upon which the unwise among them have now embarked is likely very seriously to set their country back, even if they succeed in their task, since its continuation will give greater opportunity for aggressive nations to assume the command in China which otherwise they would not dared to have done. Unhappily the die is now cast, and the Republicans must win or lose. To win they must fight their way through all the provinces to the Yangtsze, if those provinces fail to join the movement voluntarily, and if the Republicans are not content with a South China Republic they must continue shedding blood, burning and ravaging, to Peking. Words are not needed to describe the condition China will be in after such a campaign.

JAPAN'S RESPONSIBILITY FOR CHINA'S TROUBLES

On January 21 the Waichaiopu (Chinese Foreign Office) notified the Foreign Ministers in Peking that statements made in the press of both China and Japan to the effect that the coronation of the Emperor-elect had been fixed for February 9 were unauthorised and incorrect. It was deemed advisable to make this declaration in view of the campaign being carried on in Japan with the object of convincing the Japanese Government that a predatory policy should be adopted with regard to China since that country had ignored the "friendly" advice tendered by the Entente Powers. On the extraordinary grounds that China had "flouted" Japan by proceeding with the preparations for the coronation the Japanese press and militarist party demanded, and were becoming increasingly insistent in their demand, that Japan should administer condign punishment. The state of politics in Japan, too, indicated that if the slightest excuse could be found to chastise China for minding her own business it would be availed of in order to avert the probable fall of the Okuma Cabinet by distracting public attention.

The Chinese Government therefore deemed it prudent to give no excuse for further unpleasantness with her neighbour and decided to make the situation clear. While nothing was said about postponing the coronation indefinitely the Powers who had put their finger in the pie at the behest of Japan were given to understand that the Emperor-elect had no intention of rushing the coronation, but intended instead to devote his time to restoring order within the confines of his country. No doubt this renewed assurance will be regarded both by the rebel elements and Japan as further weakness, and it will be surprising if the fullest advantage is not taken of it. Japan has given many intimations to the rebel section that she is not averse to their efforts to create continued disorder in the country, and the regrettable feature is that the rebels have been so short-sighted as to accept this dangerous sympathy. When Japan headed the first demarche the rebels unquestionably took the advice, offered as it was without any apparent reason, to be an intimation on the part of Japan that she, like them, also wished to see the overthrow of Yuan Shih-kai, and since that was followed by the Yunnan outbreak the "leaders" of which went direct from Japan to Yunnan, the responsibility largely rests upon her shoulders for the bloodshed and unrest caused by that unfortunate movement. The obvious moral is that if Japan is sincerely desirous of seeing peace and order obtain in China she should abstain from interfering with China's domestic concerns. That we are not alone in the belief that Japan is to blame for any unrest in China is shown by a striking article that recently appeared in the exceptionally well-informed *Japan Chronicle*. We quote:

"From the point of view of a group of Powers desirous of China remaining at peace, the presentation of the joint Note was a diplomatic blunder of the first magnitude. Three months before it would have been a different matter altogether, but coming at the time that it did, it could only make things worse. Interference in the internal quarrels of a nation has proved disastrous again and again, and should only be resorted to in the gravest circumstances, and there is no evidence that such circumstances had arisen in China. It is easy to foresee what will happen if the President fails to put down the present disturbance quickly and completely. The Powers will intervene to prevent further disorders, and the Powers, in this case, means Japan. As between the other Powers and Japan, it remains to be seen whether the simultaneous action will have the effect of maintaining their respective interests in China. About the same time as the Joint Note was presented, we heard of Japan joining the no-separate-peace treaty and being definitely promised a full voice in the peace discussions. Exactly how the advantages and disadvantages of these steps are calculated, and how they balance with the advantages or disadvantage of co-operation in the presentation of the Note, are matters which diplomatists have, no doubt, carefully weighed. One thing is certain—that any disturbance in China deemed sufficient grounds for Japanese interference increases influence in that country, and the present conditions are extremely favourable for such interference. It is only two years ago that Sir Edward Grey declared that Britain's chief interest in the Far East was to see a strong and united China, while it has been asserted a hundred times that the autonomy and integrity of China were the bedrock of Japan's Far Eastern politics. If diplomacy is moving towards these ends it is by a route of more than diplomatic deviousness. There are Japanese statesmen old enough to remember domestic revolutions in this country. One wonders how they would have regarded a joint Note in 1867 or 1868 demanding that the Restoration be deferred to a more suitable time. Their experience of what foreign interference those interested in embroiling the Shogunate with the Powers was able to achieve was not entirely happy or to be looked back on as adding to the national dignity. These memories, however, do not seem to have any influence on their China policy."

JAPAN'S LATEST INSULT TO CHINA

Any layman may be pardoned who confesses to absolute mystification with regard to Japan's policy towards China, for international history provides nothing more complex than the tortuous course followed by Japan during the past eighteen months. So extraordinarily contradictory has her attitude with regard to China been that she is either bungling her diplomacy or she has decided upon a course calculated to inflict upon China the most startling surprises and most studied humiliations. While professing ardent friendship on the one hand, she wields a mailed fist on the other. In a fair way to develop trade relations with China calculated to outstrip in value those enjoyed by any

other older nation she deliberately perpetrates acts destined seriously to curtail the existing volume and absolutely threaten possible supremacy. As a result of the now notorious twenty-one demands and the consequent ultimatum Japan lost trade to the value of some thirty million yen within the short space of two months. Scarcely had the feeling which caused this loss subsided in China than other steps were taken which are destined to widen the breach between the two countries. Instead of solidly cementing friendship with China it would seem that Japan is bent upon engendering constant distrust and estrangement. The t e of common literature which should be a unifying agent, the advantage of centuries of association which should be the foundation stone of co-operative action, the many similarities marking the social life of both nations which should be a shield against exotic influences creating schisms, seem to be valueless in the hands of Japan. The reason is difficult to seek. If Japan is not merely clumsily dislocating her own chances out of sheer inability to solidify them she is deliberately pursuing a sinister policy of pin-pricking designed to sting China into providing the excuse for conquest, in which case the fact is made obvious that Japan has accepted the theory poetically described by Wordsworth in the lines "That they should take who have the power, and they should keep who can." A dangerous policy at best, but one the adventurous militarist party of Japan would seem to regard as profitable at the present juncture.

These reflections are caused by the latest snub which Japan has administered to unsuspecting China by calmly notifying the Peking government at the eleventh hour that it was advisable to postpone the mission of congratulation to the Japanese Emperor which China, in arrangement with Japan, had prepared to despatch. The Mission was to have been headed by Mr. Chow Tze-chi, the Minister of Commerce, Agriculture and Industry, and attached to it were to have been the heads of several departments who were to have investigated Japan's industrial development. Japan expressed pleasure when the mission was suggested, and later encouraged the Chinese by outlining the preparations which had been made to receive it. As the mission from Russia headed by the Grank-Duke George was also in Japan it was suggested to delay the Chinese Mission until His Majesty the Emperor could be free to give it proper attention, and finally it was arranged that the departure from China should be on January 19. All preparations were completed, and part of the suite had set upon its way when on January 15 the Japanese Minister telephoned to the Chinese Foreign Office announcing that he had received telegraphic instructions from Japan asking that the mission be postponed. On the following day the Japanese Minister personally called on the Foreign Minister and informed him that his instructions were that "as certain circumstances had arisen which prevented the Emperor receiving the mission" the government would be glad to have it postponed. It is significant that no explanation was tendered when this communication was made, but in a semi-official telegram from Tokyo it was stated that the postponement was requested because the Emperor would not be present in Tokyo at the date the mission was expected to arrive. An extraordinary suggestion, unless His Majesty were seriously ill, in view of the fact that the dates for the departure of the mission from China had already been arranged with the Japanese Government. Officialdom in Peking was naturally thrown into a state of bewilderment, and no satisfactory solution could be found by any of the foreign diplomatic corps for so sudden and unexpected an action, save and except the one that Japan undoubtedly was determined to show China the scantiest courtesy she could in any and all circumstances. A few days later, however, an official explanation was forthcoming from the Japanese government, and it was to the effect that while the Japanese Government knew that the mission was purely one of courtesy and was without political import, a certain section of the press of both countries had ascribed to it political motives, and had alleged that concessions were to be made to Japan by China to secure her support and recognition of the monarchy. In view of this and having regard for the fact that there were Chinese and Japanese who were anti-monarchists and fanatics who would plot against the mission, the Japanese Government deemed it wise to have the mission postponed since they were desirous that no harm should come to it, a possibility, they added, as was evidenced by the attempt in Japan on the life of Li Hung-chang, after the Sino-Japan war, and the more recent attempt upon the life of Count Okuma, the Japanese Premier, who a week before had been fired at as he drove in the streets.

This is, of course, a plausible excuse, but one which reflects seriously upon the ability of the Japanese Government effectively to police their own country, and consequently constitutes a striking commentary upon Japan's reiterated superiority over China in the organization and control of her internal affairs. It is a grave admission, too, that Japan knows that within her confines Chinese assassins plot with Japanese to destroy life, and yet takes no stringent action to arrest the plotters or curtail their activities. It is further an excuse which embodies a confession that the Japanese Government is just as helpless as it repeatedly alleged the Chinese Government is when it is confronted with some exceptional popular ebullition. In fact the Chinese Government felt no doubt about its ability to protect the Japanese Parliamentary mission which some time ago travelled through the country at a period when the Chinese populace had not nearly recovered from the insults it deemed were heaped upon it by the presentation of Japan's notorious list of demands and ultimatum. Though anti-Japanese feeling was running high, and people were subscribing large sums to a Patriotic Salvation Fund to defend itself against Japan, the Japanese parliamentary members, who might well have been accused of participation in the humiliation of China, traversed this land without one unpleasant incident, the amplest protection being afforded by the Chinese Government. Japanese business missions have also been similarly cared for without question, and at no time has the Chinese Government even thought of shirking responsibility by requesting the postponement of any particular pre-arranged or even unexpected visit. Apart from this, however, there is a point needing some explanation, and that is the delay in notifying China that it would not be expedient for the mission to sail. When it was suggested that the mission should visit Japan it was known to the Japanese authorities that there were rebels in their territory, it was also known that an attempt had been made upon the life of Count Okuma, Japan's Premier, and it was fully known that the Japanese press were strongly anti-monarchical as they are anti-anything which China might attempt to do without the acquiescence or consent of Japan. The warning which was so belated could therefore have been issued much earlier, and if it be contended that it was not until the eleventh hour that the Japanese authorities became possessed of definite information of some plot that was likely to be successful it is very curious that arrests were not promptly effected, at least as evidence of good faith. If Japan's excuse be true, then, the world must accept Japan's declaration that she really is unable to protect the lives of public personages who propose to visit the country as guests of the nation, if some would-be assassin or other is enterprising enough to precede his victim and arrange for assistance from what the Japanese Minister describes to the Chinese Government as "fanatical Japanese," a class, apparently, who enjoy some immunity from the grip of the law. What China is entitled to expect, however, is that the Japanese Government, now that it has been placed in the humiliating position of having to request the postponement of a visit of a mission from a friendly country because it cannot protect it, will leave no stone unturned to limit the possibilities for harm by the rebels and "fanatics" who seem to be terrorising it, and if the Japanese Government fails to do this it certainly would seem to be in order for the Chinese Government to follow the example of Japan and send a Note pointing out the grave state of affairs existing in the Japanese Empire.

If the explanation of Japan is but an excuse it is an unfortunate one, and no surprise need be felt that the Chinese place their own interpretation upon it. Rightly or wrongly the Chinese have come to believe that Japan burns the midnight oil planning how next she might bring humiliation upon their country. The Chinese press openly write of the postponement of the mission by Japan as an insult, and Chinese officials regard it as such. The result is likely to be, as it probably is intended to be, an inspiration to short-sighted malcontents in China to harrass the government, a development which by no means tends

to cement the friendly feelings which Japan so frequently talks about but so seldom exhibits. Foreigners whose business it is closely to watch international developments in this quarter of the globe can find little to say in defence of Japan's action, and most of them reluctantly conclude that it presages something more menacing. The concensus of opinion is that Japan, or a forceful party in Japan, is determined to create trouble in China which will afford excuse for the invasion of the country on the plea of protecting foreigners, and if that prevailing belief is incorrect it is distinctly due peaceful Japanese merchants that their Government disowns connexion with such an idea. Until Japan takes steps to suppress the continual vituperation which disfigures a large section of her press when they discuss Chinese affairs she will be suspected of unfriendly motives, and while suspicion is allowed to run rampant Japan need not be surprised to find a sustained falling off in her trade returns. It is realised by those who know the conditions in Japan that the mercantile and trading classes are averse to adventure in China, and that they abhor the cruelly irritating procedure adopted by the government towards their neighbour. They resent it because they are the ones who lose money as a result of it. The militarist party, however, are unmoved by the cries which try to halt their juggernaut. All that they see is a large army and what they believe to be the finest navy in the world lying idle while there are fair lands in China to conquer. Their desire is to turn on steam, and to go forward despite treaties, or alliances, or undertakings. The rest of the world is busy with its bloodshed or is too proud to dabble in such a thing, and the latter being recognised by the militarists they deem it a heaven sent opportunity, or as Count Okuma describes it "the opportunity of a thousand years," to go ahead and garner what is available in the way of ill-protected territory. The press make no bones about expressing themselves in this connexion and in blunt and sinister terms, and since they are permitted freedom of speech in urging an invasion of a peaceful friendly neighbour no one can be blamed for taking the most pessimistic view of the ultimate aim of Japan. It behooves all powers interested in the Far East, therefore, to keep a tireless eye upon events, and to be unceasing in their watchfulness until Japan clearly and unreservedly demonstrates that she as a nation harbours no predatory designs upon China but intends to uphold the solemn engagements she has entered into to safeguard the territorial integrity of China and respect her sovereign rights.

SOME THOUGHTS FOR CHINA'S BENEFIT

In the last issue of this journal reference was made to the intention expressed in a Mandate to reform the *likin* system, or lack of system, which now obtains throughout the provinces of China. As an earnest of the sincerity of the Emperor-elect in this direction we were told that officials had been despatched to investigate the manner in which this curse was militating against commercial progress in the country. If the spirit which animates the ruling hand to act in this direction would but inspire it to undertake a thorough and deep inquiry into the state of all forms of taxation something might result to justify the good that is claimed will come of the present change in the form of government. The whole method of taxation in China screams so loudly for reform that the resultant noise deafens the ears of officialdom to the actual source of the sound. What are the heart cries of an oppressed people are misconstrued by the deaf and the blind, the complacent and the self-satisfied official as the blatant mouthings of political agitators or the echoing clamours of the ignorant masses who may be led astray by half-digested theories. This deplorable condition existed under the so-called Republican regime just as it did under the autocratic rule of the Manchus, and it will obtain under the new Monarchy (that already styled Hung Hsien—or Great Constitution) unless a relentless attack is made upon the very root of the evil. If the Emperor-elect will do but that one thing and do it well he need do nothing else completely to justify his assumption of Imperial prerogatives, though the immediate future bristles with a myriad opportunities for a courageous man to make his name and rule immortal.

As has been alleged of the great bulk of mankind, so of the Chinese provincial officials: they resemble the swine which in harvest gather and fatten upon the acorns beneath the oak, but show to the tree which bore them no other thanks than rubbing off its bark, and tearing up the sod around it. Always the docile, law-abiding, easily governed people of China have been regarded as fair game for iniquitous taxation. Nor did the so-called Republic better the condition one iota. If anything it intensified it. There has been an increase rather than a decrease of taxation; an intensification rather than an amelioration of the deplorable condition of the great masses who constitute the backbone of the country. In certain regions the oppression has been worse than in others. Any indication of prosperity has been followed by studied efforts in the shape of taxation to kill it. Just as the recent levying of new *likin* dues on certain railways in the east* promptly prostrated freight returns and caused a cessation of cargo shipments, so did short-sighted officials in the far north-west ruthlessly tax a newly developed trade, which was bringing into the region something like $200,000 per annum, until it was practically extinct. And in that self-same region indiscriminate taxation has now reduced the farmer to one square meal in two days. Whereas his cart was once taxed one sum for one year it is now mulcted in the same sum every five days. His horse is taxed going and coming; his grain is taxed in the ground and out of it; his pig is taxed alive and dead; its hide is taxed and its bones are taxed, and its despairing expiring squeal only escapes an impost because the tax-collector does not happen to be present when it gaspingly gives up the ghost. And for the money thus squeezed from the farmer what does he get? For roads he gets quagmires; instead of efficient police to protect him he is ravaged by bandits, who supplement the taxes of the officials with more taxation, or if he complains that his horse and cart have already been taxed to the limit of endurance he is deprived of both, and the products they were carrying to market are jettisoned by the bogside. On the other hand if he pays the bandits he is later on waylaid by "soldiers," for whose upkeep he is already squeezed dry by the district officials, and refusal to exhume the few remaining cash buried in the depths of his garments meets with the loss of his property or a brutal beating. One night an inn-keeper in this territory was beset with armed robbers. His son escaped, mounted a horse grazing near at hand, and rode through the night to the distant magistrate. He told of the sad plight of his home—and was arrested for spreading "false rumours," release being refused until his already robbed father paid a fine. "And I have no money now," wailed the broken parent, "so my son must stay in gaol."

This allusion to the state of affairs in many parts of interior China is not the product of an idle imagination. The actual happenings related above occurred in the region north-west of Kalgan. The whole country from Tatung to Kwahwacheng and the Yellow River is a hot bed of brigands who defy the officials, who ignore the soldiers, and who regard it as their right to levy toll on every person who feels called upon to travel or who has the temerity to live anywhere but in a walled city. Even when thus protected there is little safety, for when "revenue" is not forthcoming from the wayfarers and the isolated the brigands combine forces and attack some city, capturing and looting it.

It is with regret that we feel called upon to emphasize such a lamentable state of affairs, but we do so in the hope that the officials of the Central Government at Peking, and above all the Emperor-elect, will learn what is in all probability hidden from them by interested maladministrators in the interior. Defenders of Republicanism will require more than books of theory to explain away this grave state of affairs, and on the other hand, unless the Emperor-elect takes steps immediately to extirpate the cancer of corrupt practices in the outlying regions of the country the Monarchists will have to fight hard in the future to justify the new dynasty which they have inaugurated on the ground that better government will be possible and better times will be ushered in for the unhappy farmers and their

*See article on "Likin on the Tientsin-Pukou Railway."

families. Nor does iniquitous taxation and deplorably inefficient policing strike only at the farmers. All trade and commerce is so grossly and insistently obstructed that the marvel is that anarchy does not openly prevail. What trade is done in these regions is done in spite of the *soi-disant* protectors, and superficial order is kept among the toilers not as a result of the administration of the law, for there is but lawlessness, but simply because of the innate peacefulness of the long-suffering people.

Ample justification will be afforded the Monarchists, however, if strong measures are inaugurated to exorcise the curse that seems to hang over so much of the country. And the measures that might be taken to this desirable end are so simple, so easy of adoption, and so fraught with immediate benefits that it is difficult to understand why they were not introduced long ago. The excuse given by Peking has been that the alleged liberty and equality which are supposedly the public right under a Republican form of Government have been misinterpreted as individual license to disregard laws, or to interpret them as suits the individual taste, and to regard as an equal the Chief Executive of the State.

We do not admit, however, that Republicanism in China has been given a fair trial. It has not. It has failed, first, because the people are ignorant, and, secondly, because Young China developed no leaders with capacity properly to inaugurate the new regime. What masqueraded as Republicanism was a Dictatorship, and Young China could take no steps successfully to supplant it with the ideal conditions which constitute their dream. Their efforts have painfully proved the old dictum that attempts at reform which fail simply strengthen despotism. A mass of evil has sprung into being which we fear cannot be removed except by what Young China regards as a step backward, and we take it that since the young enthusiasts must have the state of their country really at heart they will be more than glad, if they are wise, to see some semblance of legality bestowed upon a form of government which is at once obnoxious to them in its illegality and irremediable by any other means. Those in power under the pseudo-Republic, supported by a large public opinion, both Chinese and foreign, are convinced that the evils which have sprung up in recent years cannot be extirpated without a change in the form of government, and if that be true and the suggested change can efface them it is better that it take place immediately and be supported by all Chinese for the sake of the future of their great country. It has been argued by those who are in power that monarchical rule will bestow the authority necessary to enforce laws as they should be enforced. That remains to be seen, but in lieu of other means the test should be permitted and be supported. Much, however, depends upon one man. It is averred that he could have accomplished more as President. He on his side indicates that beyond a certain distance he could not go, but now the great onus is directly upon his shoulders of proving that under a Monarchy the elements that exist in China for the establishment of a properly governed State will be wisely used and promptly employed. Out of comparative chaos it is for him to devise the means to produce order, and if he is able to reform conditions he will have earned his throne a hundredfold and will have merited the unquestioning allegiance of all his subjects. Great tasks lay ahead to be done, and the outstanding one is the regulation of taxation, the crying evils of the irregularity of which constitute the opening phase of this article.

Bold and courageous action must be taken at once by the Emperor-elect to prove to the people of China and the nations at large—who are keenly interested spectators of the drama unfolding in this land, despite the devastating war upon which most of them are embarked—that the mere glamour of a crown, is not what alone attracts. He must have a strong arm to strike for an extended range of civil privileges, for a broader basis of government and for the general well-being of the great masses who are destined to toil and to suffer under existing conditions. There must be an earnest development of commerce and industry, an uplifting of mental and moral qualities by systematized and wider education, and above all the inculcation of the understanding that the official holds his office for the good of the people rather than for his own personal aggrandisement. A weak man might well tremble at the thought of the great work that lies ahead to be performed. Yuan Shih-kai is credited with being a strong man—the only strong man China has produced in recent times. Hitherto he has enjoyed the advantages of the excuse of lack of freedom of action in effecting widespread and radical reforms. Such excuses do not now exist, and having risen to the highest place of power and privlege any State can offer it is to be expected that deeds will replace the words of the past, and effective steps will be taken to elevate China to the level she ought to occupy in the comity of nations. Dilatoriness on the part of the Emperor-elect now will but condemn him in the eyes of his own people and those of other nations, but those who know Yuan Shih-kai best assert without reservation that he is anything but slothful. Determination is the quality that has elevated him to his high position, and unless he has absorbed it all in his long climb upwards it is but right to assume that his talents will soon have full play in the best interests of his country.

First on his list of reforms he should place the regulation of the finances. A progressive, modern educated Minister of Finance should be installed to reform taxation. Expert foreigners with administrative experience should be employed and endowed with executive power to regulate collections, to systematize accounting and to contrive that all moneys belonging to the State should go to the use of the State and not partly to individual officials. Irresolution with regard to reform of currency should be replaced by activity under expert guidance, aiming first at standardising the dollar throughout the country. More than half of China's woes have been caused by the haphazard character of taxation and its oppressive incidence. An ignorant, short-sighted Minister of Finance having power to tax hither and thither has, *ipso facto*, the power to do infinite harm, and the Emperor will do well to inaugurate his reign by bestowing this important portfolio upon a man capable of using the best foreign guidance available for a general reconstruction of the faulty system now in use. And the Emperor-elect should go even further than that: he should see that in the future no Minister of Finance should have the power to impose taxation without the consent and approval of Parliament.

Step by step with reform of taxation should come an absolute change in the police system, and in order to make the administration thoroughly effective the recently promulgated regulations for the civil service should be strictly enforced. To be a better country it is vital that China should have better officials than the majority of those who now inflict themselves upon her. The widest use should be made of the students who have studied abroad, each in his proper place, so that the learning they have acquired might be utilised for the State. There is a belief extant that Yuan Shih-kai is averse to the returned student on account of the alleged revolutionary proclivities of that class. We are inclined to believe that responsibility for this unhappy development is due more to officialdom than to any foreign teaching. Young men have returned from the outer world filled with hope and confident of being able to employ their talents for the improvement of their backward country, merely to meet the cold shoulder of scorn from officials whose ignorance even of what ought to be their simple duties is colossal. Many have found themselves ruthlessly relegated to the background or compelled to follow the course of "olo custom" with all its iniquities, and in these, no doubt, the slow fire of hatred of everything connected with the benighted mandarinate has smouldered dangerously and has occasionally burst into flame. Yuan Shih-kai, has, however, in the past been the champion of the progressives, and it would be peculiarly strange if now that he mounts the throne via the shoulders of this class he should hesitate to utilise them to the full. One thing the Emperor-elect owes them is the widest consideration, for if China is to progress at all she must do so with the aid of these foreign educated men. Of this Yuan Shih-kai is fully aware, and we hope that it can be taken for granted that the future will see a distinct change from past policies in this connexion. Yuan Shih-kai's own future success depends as much upon it as does the welfare of the country. The returned students do not want power so much as they want

to see those in power adopting progressive measures. If they can participate in a forward programme making for the upbuilding of the nation they will be content, malgre the agitations of the irreconcilables, who, like the poor, are sure always to be with us. Emperor-elect Yuan Shih-kai has it in his hands to become the greatest man China has produced, and opportunity is knocking loudly at his door. The question is: Will he open and give it welcome?

SIR RICHARD DANE

China is to be warmly congratulated upon having prevailed upon Sir Richard Dane, K.C.I.E., to continue his work as Associate Chief Inspector of the Central Salt Administration for a further three years. Sir Richard's existing agreement expires in June next, so the new arrangement means that he will be able to perfect the system which he has been inaugurating the past two and a half years. To acquire a thorough first-hand knowledge of the intricate salt system of China Sir Richard made it his business personally to visit and inspect all the salt production areas, even undertaking the long and arduous journeys involved in a visit to the remote provinces of Yunnan and Szechuan. The knowledge and information and experience by thorough inspection of the sources of supply, coupled with close investigation of the methods in vogue of handling salt and the taxes collected thereon, make Sir Richard invaluable to the Chinese Government in the great work of organizing this important industry. It constitutes China's oldest and greatest source of revenue outside of the land tax, and the result of the reform thus far carried out has been the collection of the highest salt revenue so far actually recorded, the net figures for last year being given in another column in this issue. It is anticipated that a continued increase will mark the further reforms that it is proposed to inaugurate, especially if the Ministry of Finance accords the assistance and unfettered freedom of action which is needed effectively to administer the service. It is pleasing to record that Sir Richard Dane has gained the complete confidence of the Chinese Government and the admiration of all who wish to see this great country become well-established. His peculiar faculty of getting on with the Oriental has stood him in good stead, and what he has been able to do he has done without heart-burnings or bluster. His record is one which has earned him warm gratitude, a fact well exemplified by the following terms accorded him to remain in China:

1.—The agreement will be renewed for another three years from first June, 1916.

2.—The Chinese Government will pay the sum of £10,000 as bonus to the said Adviser on the termination of the existing agreement.

3.—Another £5,000 will be paid to him after the termination of the renewed three years agreement in 1919.

4.—Free house will be provided by the Chinese Government.

5.—In Provinces where railway communications exist, the Chinese Government shall provide special cars whenever the said Adviser proceeds to the Provinces for the inspection of the various Salt Inspectorates.

6.—In order to show the appreciation of the Chinese Government, the travelling expenses of the said Adviser from Peking to England and back shall be paid by China when he returns home to enjoy his well-earned holiday.

7.—The Chinese Government shall give seven months' leave of absence to the said Adviser during the continuance of the next three years on full pay.

Nor have Chinese alone to be satisfied that Sir Richard will continue in connexion with the Salt Administration. His presence is a tower of strength to the Bankers who have in hand the interests of the holders of loan bonds secured upon salt revenue. Likewise his performance to-date is an excellent and convincing object lesson to the Chinese Government in the matter of giving responsible foreigners power to institute modern methods. He has proved to the Chinese beyond cavil that a responsible foreigner charged with important and far-reaching work will guard the interests of China as he would those of his own country, and that he will apply himself to the task he has taken in hand as whole-heartedly as if he were connected with the enhancement of his own national wealth and prestige. While felicitating the Chinese upon retaining the services of Sir Richard Dane we might express the hope that more men of his kind be engaged to assist in the re-organization of other important departments of the administration.

THE FINANCES OF CHINA

The war that is shaking Europe to its foundations has necessarily reacted to some extent upon China's finances. The entire cessation of imports from Germany and Austria-Hungary, and decreased production in the countries associated in the Entente, combined with the scarcity of shipping, could not fail to have a prejudicial effect on the revenue from the Maritime Customs. Exchange has also been unfavourable for China. In such circumstances a considerable falling off in the Customs revenue was expected, and general surprise is expressed at the announcement that the decrease has only amounted to Tls. 2,165,000. The total collection reported is in round figures Tls. 36,742,000 (at average exchange 2/7⅛ equivalent to £4,764,978) as compared with Tls. 38,907,000 (at average exchange 2/8¾ equivalent to £5,309,184) in 1914. The following are in round figures the collections at the principal ports.—

Harbin ..	.. Tls.	1,124,000,	an increase of	Tls.	84,000
Dairen ..	.. ,,	1,740,000,	,, ,,	,, ,,	154,000
Tientsin & Chinwangtao	.. ,,	4,730,000	a decrease	,, ,,	291,000
Hankow	.. ,,	3,867,000	an increase	,, ,,	177,000
Shanghai	.. ,,	11,410,000	a decrease	,, ,,	651,000
Swatow ..	.. ,,	1,296,000	,, ,,	,, ,,	187,000
Canton ..	.. ,,	2,398,000	,, ,,	,, ,,	458,000

In view of all the circumstances the Chinese Customs have done remarkably well, and it is satisfactory to learn that all foreign obligations secured upon the revenue from this source have been fully met to December 31, 1915. As is generally known the greater part of China's foreign indebtedness is secured upon the Customs revenue. Apart from the Boxer Indemnity, which calls for about three and a half million pounds sterling for interest and amortization, there are heavy calls for the service of the Japanese War Indemnity loans.

For many years the Customs revenue was the mainstay of China's finances. The Customs was the one department that could be relied upon to turn over to the Government its total collections without improper deductions. While it has in no way lost this praiseworthy characteristic it has now to share its honours with the Salt Gabelle. In fact last year, for the first time, pride of place as the foremost revenue producing department passed to the Gabelle. The increase in the revenue producing capabilities of the monopoly since the Revolution has been remarkable. Owing to the slack and corrupt methods of collection the salt taxes in the Manchu days produced an inadequate amount of revenue, although the gross sum extorted from the consumers probably ran into big figures. Since the re-organization of the department in 1914, which was carried out by Mr. Chang Hu and Sir Richard Dane, the proceeds of the taxes have not been subject to illegal deductions, with the result that the net revenue for the year ended December 31, 1915, was $69,278,000.

We give hereunder the outstanding figures which show an extremely healthy state of affairs, particularly when it is remembered that the total collection of last year, $69,278,000, represents *net* revenue, as compared with *gross* revenue in the case of the Maritime Customs figures. These returns show a substantial advance on 1914, when they were about $60,000,000, and there is every reason to suppose that they are capable of further expansion. The system of collecting a direct consolidated duty before the salt leaves the works or before it leaves depots appointed for its storage and issue to the trade has now been almost uniformly introduced, and it is to this system that the very large and unexpected revenue may be ascribed. It will be noted that after meeting all charges and obligations the salt account closed the year with a balance on the credit side of $24,385,000, out of which $6,500,000 was advanced to the government for administrative purposes in the beginning of January, 1916, and a further $2,000,000 towards the end of the month, leaving a credit balance in the Group Banks of some $15,885,000. As the bulk of the Boxer Indemnity for 1916 will have to be paid from the salt revenue it is necessary to hold a large balance for the purpose, for which reason larger sums are not released to the government at this time. In 1915 the substantial

sum of $27,788,000 was paid on behalf of the Indemnity. The amount paid out in connexion with the Reorganization Loan, for which the salt revenue is the security, does not represent all that was paid by the Government, the interest due in the first six months of 1915 being paid from the reserve coupons held by the banks in England. The following is a statement of the Salt Revenue Account for 1915.

Balance in the Banks on January 1, 1915	$17,328,000
Interest..	197,000
Net Revenue collected during 1915	69,278,000
Total	$86,803,000

Charges and obligations :

Boxer Indemnity	$23,788,000
Chihli Bond	731,000
Crisp Loan Coupons..	2,999,000
Reorganisation Loan..	6,932,000
Hupeh Bonds	149,000
Miscellaneous Withdrawals..	23,000
Releases to Government	27,523,000
Exchange	273,000
Balance @ 31/12/15..	24,285,000
Total	$86,803,000

Detailed figures in regard to the revenue from the State Railways is not available, but it may be assumed that even if the income from this source is not considerable it is on the up grade. Many of the lines are already paying handsomely and, when necessary connections and extensions have been made, others will become revenue producers. The war has, of course, greatly interfered with construction work, but it may be anticipated that with the return of peace capital will again become available in view of the splendid returns afforded by investment in Chinese railway bonds. It might be suggested that in view of the excellent results obtained in the Customs and Salt Departments by making use of the services of foreign experts in the actual administration the same system should be applied to the railways. There would be nothing derogatory to the pride of China in the adoption of such a course, and it is certain that great benefits would accrue. Other countries in which the railways are owned by the State have not hesitated to engage the services of foreign experts and to give them full control. In Australia for example, expert Commissioners were engaged in America and given the most comprehensive powers. Japan, also, did not hestitate in the past to make use of the wider knowledge and experience of foreign railwaymen.

The significant fact in regard to China's finances is that she has not only been able to meet all her foreign obligations during 1915, but has also found it possible to set aside sufficient for the service of her internal indebtedness. Her credit consequently has been strengthened and there seems just reason for the belief that she will be able to make ends meet during 1916. The Budget (which we publish elsewhere) provides for the raising of only $20,000,000 by domestic loans, and no difficulty should be experienced in procuring this sum. It is interesting to note that, according to the Budget, the national revenue for 1916 will be $471,946,710. Assuming the population of China to be 400,000,000 this means about $1.18 per capita. The per capita taxation in Japan, according to Japanese statisticians, is about Y8.7. The difference is striking and suggests that what may be called the financial reserve of China is enormous.

CHINA'S BUDGET

The Central Government of China, having obeyed the "will of the people" in respect of the establishment of a Monarchy, signalised the arrival of 1916 by decorating it with the dynastic name of Hung Hsien, and by providing a budget to cover its financial possibilities. In the course of a Mandate promulgating the Budget it was said: "Since the promulgation of the Budget of the First Year of Hung Hsien, all the officials concerned should remember that the Government funds are collected from the 'blood of the people.' The saving of one cent in the administrative affairs means the accumulation of one additional cent in the financial resource of the people. Therefore all the officials are hereby instructed that all the receipts and expenditures should be managed in strict accordance with the stipulations in the Budget, and no extravagance or extortion should be tolerated so that the good wishes of the Government in the love of the people and the exercise of economy in respect of the effective enforcement of the constitutional administration may be carried out."

The Budget is as follows:

A. Receipts. Ordinary

a.	Land tax	$ 95,972,818.00
b.	Customs revenues	71,320,970.00
c.	Salt revenues	84,771,365.00
d.	Goods tax	40,271,368.00
e.	Principal and miscellaneous taxes like title deed tax, tobacco tax, wine tax, tea tax, pawnshop tax, etc.	32,341,704.00
f.	Principal and miscellaneous duties such as tobacco and wine duties, rice duties, silk duties, butchery duties, house duties, etc. ...	14,067,574.00
g.	Government property income like government enterprises, government shares, house and land rentals, etc.	2,621,261.00
h.	Miscellaneous income in the provinces like home affairs, receipts, financial receipts, judicial receipts, interest on government funds, etc.	6,927,694.00
i.	Central organ receipts like Foreign Office receipts, ministry of interior receipts, ministry of finance receipts, etc.	1,635,464.00
j.	Central government direct receipts like stamp tax, tobacco and wine license tax, title deed inspection fee, income tax, etc.	76,306,927.00
	Total receipts	$426,237,145.00

B. Receipts. Extraordinary

a.	Land tax and supplementary levyings... ...	$ 1,580,695.00
b.	Customs revenues	847,359.00
c.	Goods tax fines	18.716.00
d.	Rice duties and miscellaneous duties	4,496,333.00
e.	Government enterprise receipts...	16,703.00
f.	Miscellaneous receipts in provinces, like fines,	338,253.00
g.	Central organs receipts	1,359,698.00
h.	Central government direct receipts ... ... from sales of public properties.	17,051.808.00
i.	Public loans, internal loan, ten million industrial loan, ten million total loans	20,000,000.00
	Total receipts	45,709,565.00
	Grand Total Receipts ...	$471,946,710.00

C. Expenditures Ordinary

a.	Ministry of Foreign Affairs	$3,276,677.00
b.	Ministry of Interior	49,653,982.00
c.	Ministry of Finance	53,531,625.00
d.	Ministry of War	135,813,986.00
e.	Ministry of Navy	17,101,779.00
f.	Ministry of Justice	7,665,772.00
g.	Ministry of Education	12,611,583.00
h.	Ministry of Agriculture and Commerce ...	3,762,244.00
i.	Ministry of Communications	1,577,408.00
j.	Board for Mongolian and Tibetan Affairs ...	947,230.00
	Total	$285,942,286.00

D. Expenditures. Extraordinary

a.	Ministry of Foreign Affairs	$ 826,141.00
b.	Ministry of Interior	2,105,864.00
c.	Ministry of Finance	175,302,789.00
d.	Ministry of War	6,438,727.00
e.	Ministry of Navy	102,758.00
f.	Ministry of Justice	45,572.00
g.	Ministry of Education	225,724.00
h.	Ministry of Agriculture and Commerce ...	376,792.00
i.	Ministry of Communications	112,783.00
j.	Board for Mongolian and Tibetan Affairs ...	40,000.00
	Total	$185,577,150.00
	Grand Total expenditures	$471,519,436.00

REVISION OF CHINA'S MINING LAWS

The present Minister of Commerce, Agriculture and Industry, by whom are handled the mining affairs of China, has determined to have the mining regulations revised by experts. A set of regulations was promulgated some time ago, but failed to

meet with a favourable reception, many of them being regarded as unworkable, or at least unacceptable to foreign capitalists. Efforts have been made from time to time to induce foreigners to invest capital and employ their experience in developing mines in China, but unhappily a *modus vivendi* could never be reached owing to the requirements of the laws. The foreign diplomatists also turned their faces against the regulations with the result that there has been practically no advance made in the opening of the mineral wealth of the country. So incessant has the demand been for a revision that Mr. Chow Tze-chi has determined to see what can be done, and with the object of having the best talent available he has secured the services of Mr. Lindsay, K.C., who has had wide experience in mining law and its application in various parts of the world, and who was engaged as legal adviser by the British financial group composed of Messrs. Pearson and Son, Ltd., the British and Chinese Corporation, Ltd., and the Central Mining and Investment Corporation, Ltd., in connexion with their negotiations with the Chinese Government for mining rights in the province of Szechuan. In the work of revision of the mining laws Mr. Lindsay will have co-operating with him Dr. Anderssen and Mr. A. S. Wheler, the advisers to the mining department.

REDEMPTION OF THE "HONGKONG GOVERNMENT GOLD LOAN OF 1905"

It will be remembered that in order to redeem the franchise for building the Canton-Hankow Railway from the American-China Development Company, some eleven years ago, the Chinese Government had to buy up the shares of, and the gold-dollar bonds issued by that Company. For this purpose, the Government borrowed £1,100,000 from the Hongkong Government. In the Agreement it was provided that besides paying interest half-yearly, the repayment of principal should be made by ten equal instalments, payable once every year. These obligations have been punctually met by the proper authorities during the last ten years. The last instalment of principal and interest, which became due on December 6th, 1915, was also duly paid by the Ministry of Communications and the Kuangtung Railway Company; so the so-called Hongkong Government Gold Loan of 1905 of £1,100,000 is now entirely liquidated.

THE FOSSILISED DRAGON

In connexion with the story of the discovery of supposed fossil remains of dragons in a cave on the Yangtsze River near Ichang, which we published in last issue, the following Mandate issued by the President may prove of interest:

"Wang Chan-yuan and Tuan Su-yun (Chiangchun and Governor of Hupeh) in a telegraphic memorial state that they have received from the Chamber of Commerce, the Directors of Schools and the local gentry, in Ichang, a petition in which it is stated that 'Recently some Europeans have entered deeply into the Shen-k'an (Divine Inclosure) cave and discovered in it a stone with the shape of a dragon lying coiled on the ground about more than 50 Chang (500 Chinese feet) in length. Study reveals that this is the remains of a real and living dragon in ancient times which afterwards transformed itself into a stone fossil. This discovery signifies the dawn of a new era like the rising of a dragon and the laying of the foundation rock of the dynasty for myriads of ages. Moreover, the timely appearance of the stone remains of the divine dragon on the bank of the River is a sign of the grace of Heaven and the rejoicing of the people on earth over the present issue of the Government. Therefore, it is sincerely requested that the Chiangchun and Governor of the Province should telegraphically report this phenomenon to the Throne to be recorded by the Historigraphical Bureau so that the incident may reach the knowledge of future ages as an appreciation of the favour of Heaven and the wishes of the people, etc.'

"From ancient times to the present moment the prosperity of a country invariably depends upon the exercise of care, diligence, caution, and discipline on the part of the ruler. It is only by the proper reform and enforcement of the administration that every individual of the people will receive benefit from the Government. The mere talk of emblems and influence of good omens, such as in ancient times the appearance of the Yellow Dragon, the coming of the Divine Birds, and the calling of Phœnix, and the falling of the Sweet Dew, which, taking place in various dynasties, have really no bearing whatever upon the peaceful administration or otherwise of the country. In now-a-days when every line of science has been greatly advanced, everything should be studied according to the truth, how can it be possible still at the present time to discuss and make much of what is merely a matter of superstition and to infer therefrom the emblem of peace and prosperity? Consequently the request to have the discovery of the stone dragon recorded by the Historigraphical Bureau as a sign of good omen, shall not be considered. This relic discovered in a deep cave among the high mountains may offer a good subject for scientific study. Therefore, the Chiangchun and the Governor of the Province should instruct the local authorities to carefully protect and preserve this fossil for the examination and study of geologists. As the question of misery and welfare connected with the lives of the people is constantly in my mind, I (the President) start my daily work early in the morning and continue meditating in the late hours of the night in the sole hope that the mass of the people may have happiness and prosperity, and these are signs of a good omen. It is sincerely expected that all the civil and military authorities, scholars and gentry will take note of and appreciate my view regarding the discovery."

FORESTRY EXPERTS FOR CHINA

In previous issues of this journal we have referred to the steps being taken by the present Minister of Commerce, Agriculture, and Industry, Mr. Chow Tze-chi, to inaugurate a system of reafforestation. A new bureau has been established in connexion with the Ministry solely to deal with this work; and to facilitate progress and have programmes systematised two foreigners have been appointed who have been selected for their knowledge of afforestation methods. One is Mr. Sherfesee, who has resigned from the Directorship of the Bureau of Forestry, Philippine Islands, to become Co-Director of the Chinese Bureau of Forestry, and the other is Mr. William Purdom, who has had wide experience not only at Kew Gardens, England, but for the past six years in the provinces of northern China. In this respect his practical knowledge should prove of very great benefit to the government, acquired as it was in actual work in the fields searching for plant life for scientific organizations. His intimate knowledge of the possibilities of aboriculture in northern China can be put to immediate use, as a consequence of which the government should be able to obtain results much earlier than would otherwise be possible. The engagement of these two practical men is an earnest of the government's intention to tackle the important work of planting the vast bare spaces of China, a work which has cried for generations for attention but which up to now has been utterly disregarded.

Temporary regulations for the Forestry Department were published on January 21. They provide that the Vice-Minister of Agriculture and Commerce shall act concurrently as Director of the Department of Forestry and he shall be assisted by two Assistant Directors, and experts in afforestation. The various provinces and Special Administrative Areas are to be regarded as Afforestation Areas for the time being, and in each one a special official is to be appointed to manage afforestation affairs, under the direction of the Governor and the Director of the Forestry Department. The provincial expenditure on afforestation is to be provided for in the budget of the provinces, and each Hsien (or district) is instructed to make a contribution of more than $200 annually for the promotion of plans for the cultivation of forests. The Forestry Department is to be responsible for the improvement of the revenue of the forest tax, and is to submit to the Throne suggestions for the procedure, etc., in connexion with the collection of timber taxes. The Forestry Department is to be divided into five sections, the staff of the various sections to be arranged according to the sum provided for in the annual budget of the Department.

THE "OPEN DOOR" IN KOREA

Japan's Studied Abrogation of a Policy to which She Solemnly and Explicitly Pledged Herself

The following striking exposure of the manner in which Japan has studiously laboured to exclude foreign interests from Korea, in which country she pledged herself to maintain the "open door" is taken from the "Japan Chronicle," a British newspaper published in Kobe, which enjoys the distinction of being regarded as the highest authority on Japanese affairs printed in Japan :

It will have been seen from statements made in our columns that a further step has been taken in the direction of confining the commercial exploitation of Korea to Japanese subjects. By the revised Mining Ordinance relating to Korea recently published, mining rights will henceforth be denied to foreigners. Under the Mining Law hitherto in force, mining concessions were granted to foreigners as well as to Japanese subjects, and many foreigners have been engaged in mining enterprises in the peninsula not only by virtue of that law, but as the result of concessions granted under the former Korean Government and the declaration of the Japanese Government when taking over control that there was no intention to interfere with the commercial interests of foreigners in the country. There can be no question as to the explicit nature of the assurances then given. In a statement made in a Japanese official document, the "Annual Report for 1907 on Reforms and Progress in Korea," it is declared that "the so-called 'open-door policy' in Korea has been from the very beginning maintained by the Japanese Government.

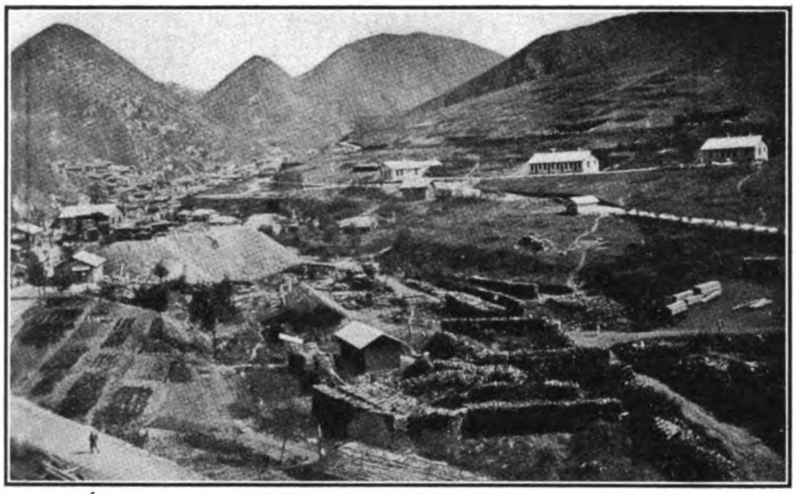
"In both the treaties of alliance between England and Japan, concluded on January 30th, 1902, and on August 12th, 1905, respectively, adherence to that policy was a fundamental keynote of the engagements. *In the latter treaty especially Japan solemnly and explicitly pledged herself to observe the principle of equal opportunities for the commerce and industry of all nations,* while Great Britain recognised the right of Japan to take measures for 'the guidance, control, and protection of Korea.'" Let it be noted that these are the words of a Japanese official publication. The same authority proceeds:—"Although Japan, in accordance with the Convention concluded on November 17th, 1905, assumed the entire control of the foreign affairs of Korea, and undertook the duty of watching over 'the execution of the treaties actually existing between Korea and other Powers,' five days after the conclusion of this Convention—namely, on November 22nd, 1905, a Circular Note was addressed to the Treaty Powers, in which the Imperial Government of Japan declared that 'in assuming charge of the foreign relations of Korea and undertaking the duties of watching over the execution of the existing treaties of that country, they will see that those treaties are maintained and respected, and *they also engage not to prejudice in any way the legitimate commercial and industrial interests of these Powers in Korea.*'"

Again, be it noted, these words are from a Japanese official publication. Now the only industrial interests of any importance in Korea in which foreigners have been engaged, with the possible exception of the manufacture of tobacco, which has already passed into Japanese hands, are those pertaining to mining. How, then, can the denial of mining rights to foreigners be consistent with those solemn and explicit assurances that Japan has pledged herself to observe the principle of equal opportunities for all nations? It is declared, by way of apology, as it were, that the provision denying mining rights to foreigners applies to the future alone, and that foreigners already in possession of mining rights will be allowed to use and retain them for any length of time in the future. Because the denial of such rights in the future is not also accompanied by a policy of confiscation in the present, it can scarcely be regarded as a justification. It does not affect the issue that to deny foreigners mining rights is an infraction of the principle that equal opportunities shall be afforded the commerce and industry of all nations. Nor, assuming it to be true, as is asserted by the *Seoul Press*, that in Europe and America mining rights are seldom granted to foreigners, can this be held to be a justification for abrogating a policy to which Japan has "solemnly and explicity" pledged herself? We do not know how the matter stands in America, where the various States have different laws, but in England there is no prohibition against the working of mines by aliens, and even in Spain, which is sometimes called a backward country, this particular form of narrow anti-foreignism does not exist. But, as we say, the argument is quite irrelevant, whether the statement on which it is based is accurate or not. A man who makes a contract, or gives solemn and explicit assurances that he will do or refrain from doing certain things, cannot be regarded as absolved from those undertakings by a variation in the contracts or assurances of other parties.

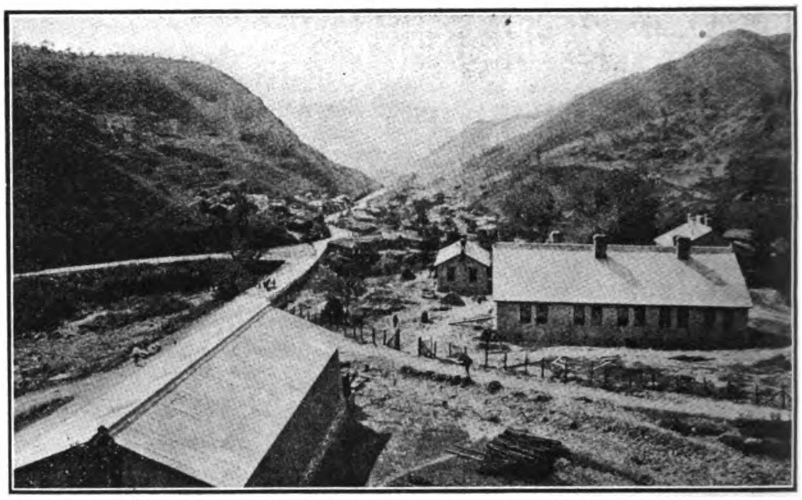
In order to show that if Japan is not maintaining the letter of her undertaking she is observing the spirit, it is further declared that "Although the acquisition of mining concessions in Korea has thus been forbidden to foreigners, they may acquire that right as partners of a legal person organised in conformity with the law of Japan, and so foreigners may still come into possession of mining rights in Korea, though indirectly, after the revised law has been put into force." Then what is the object of denying foreigners mining rights in Korea? Why are foreigners barred out by the front door and allowed come in at the back? It reminds us of the answer the Rev. Sidney Gulick makes American criticism that Japan should be the last to complain of prohibitive land-holding legislation, seeing that she denies foreigners the right to own land in their own names. Oh, says the reverend gentleman, that is not true; foreigners can own land if only they organise themselves into a legal partnership. They must first, as it were, take part in a legal fiction, and they can then obtain rights that Japanese are freely granted in other countries. The acquisition of rights by legal fiction does not appear either a safe or a satisfactory method of land ownership. What is the virtue possessed by a juridical person which enables such a partnership to do what an individual is prohibited from doing? What is the object of such a distinction? Surely it will not be suggested that an individual who owns land or acquires a mining concession is more dangerous to the State than a corporation? If extra-territoriality prevailed in Japan or Korea, the reason for the distinction would be easily understood, for while an individual foreigner would be subject to the law of his country, a partnership organised and registered under Japanese regulations would be subject to Japanese law. But no such distinction prevails. Extraterritoriality is a thing of the past so far as Japanese territory is concerned, and the individual foreigner equally with the registered foreign partnership is subject to Japanese law. It is really very difficult to understand the object of prohibiting foreigners from holding land or obtaining mining rights in their own names, while permitting both rights to be secured by organised groups of foreigners, unless the action taken is merely a stage in complete prohibition. Once the principle is established that foreigners as such are denied mining or landholding rights, it would only be a logical step to decree further that corporations of foreigners or juridical persons, organised for such purpose, are illegal, as their object contravenes the established principle.

It will be seen that the Japanese authorities in Korea have placed themselves in this dilemma. Either the prohibition of the holding of mining rights by foreigners is a limitation of the industrial freedom of aliens in the peninsula, or it is destitute of any meaning and has been promulgated for no purpose whatever. If the latter be the correct interpretation, there is no more to be said save that it is unusual for the Japanese authorities to issue notifications that are meaningless. If the former be the intention

and object of the proviso, then Japan is departing from what she has acknowledged in an official publication, issued by the Japanese authorities in Korea, to be a solemn and explicit pledge for the maintenance of the "open door." So far as the Anglo-Japanese Treaty of Alliance of 1905 goes, there can be no question that the recognition by Great Britain of Japan's paramount political, military, and economic interests in Korea was made contingent on Japan's pledge that any measures taken to safeguard those interests should not conflict with "the principle of equal opportunities for the commerce and industry of all nations." When a Japanese official publication itself declares that this provision of the treaty was a "guarantee of alien rights" and a "solemn and explicit pledge" for the maintenance of the "open door," a policy that constituted a "fundamental keynote" of the engagements into which Japan had entered, we do not see what justification can be offered for the step which the Japanese authorities in Korea have now taken to exclude foreign mining enterprise from the country so far as the wording of the law is concerned, though for the time being permitting it to enter in what may be called a clandestine fashion. To the Chinese it will seem curious that within a few months of the time that Japan has insisted on the extension of mining rights in Manchuria and Mongolia to Japanese, a notification should be issued in Korea denying mining rights to foreigners, including Chinese. To them it must appear a somewhat curious example of reciprocity. No doubt the question is now engaging the attention of the British diplomatic authorities and the Japanese Foreign Office. It is clear from the considerations we have set forth that the prohibitory clause in the Korean Mining Ordinance is quite incompatible with the pledges which it has been officially acknowledged that Japan has given. When this is once made clear to the Japanese Foreign Office, we have no doubt the provision excluding foreigners from mining rights in Korea will be withdrawn.



TUL MI CHUNG MINE OF SEOUL MINING CO.



ROAD TO PLANT AT TUL MI CHUNG

THE SEOUL MINING COMPANY

The following Report of the Directors for the year ended December 31st, 1914, was submitted to the Shareholders at the Ordinary General Meeting held at the office of the company at Deep River, Conn., U.S.A., on October 18th, 1915:

Capitalization.

The Capital remains at $500,000. During the year the Company has borrowed from its shareholders the sum of $250,000 for the purpose of erecting the Milling Plant at Tul Mi Chung, as announced in the Directors' Report for 1913, and to continue an active development policy.

The erection of the electric power plant has been completed under the capable direction of the Managing Engineer of our Electrical Department, Mr. H. Maki, and is performing its full expected service with complete regularity.

The sanguine reports and early predictions made by Mr. E. W. Mills, Superintendent of Tul Mi Chung, the discoverer of the mine, have already been more tann realized and under his efficient superintendence it continues to rapidly increase in value every month. The ore reserves already opened up at Tul Mi Chung contain a gross value of $12,000,000. The milling plant is in course of erection and in the absence of mishap it is hoped will commence service in July.

Good progress is being made in prospecting and geological examination and substantial results are confidently expected. In order that the General Manager should obtain the highest professional advice in this very important work, the services of Dr. J. Malcolm Maclaren, late Mining Specialist, Government of India, formerly Assistant Government Geologist, Queensland, &c., have been fortunately obtained, and that gentleman is now examining the Concession District. The indications pointing to a successful opening up of exceedingly large low grade ore deposits at Soctarie, quite close to the Suan Mill, are very encouraging, in addition to several other places.

During the year 74,550 tons of ore were milled, the gross receipts amounted to $703,701, and the net earnings to $413,301. The operating costs were reduced 23 cents per ton of ore below 1913. The ore reserves, as estimated in February, 1915, are 1,206,133 tons, and contain a gross value of $15,014,375, comparing with $7,645,948 in February, 1914. It is worthy of note that in the present estimate copper is calculated at only 12 cents per lb. During the year the Ore Reserves at Tul Mi Chung have trebled in tonnage and value, increasing from 317,809 tons to 963,600 tons. The development at Suan was not so satisfactory and the continuity of the ore deposit in depth below the sixth level has not yet been proved, but the General Manager's report states that the mine workings are now reaching the ore zone.

The flotation treatment addition to the Suan Mill was completed in May, 1914, and since then has yielded very satisfactory results, exceeding the estimates submitted at the time the directors authorised the erection of the flotation Plant. The substantial progress made in 1914 has induced the General Manager to call attention to the probable necessity of increasing the capacity of the Tul Mi Chung Milling Plant, and also of the Electrical Power Plant. At the time these Plants were authorized it seemed evident that they would meet all necessities for several years to come; however, space provision was made at the time of their construction for future enlargements.

The sum of $20,000 has been written off on account of depreciation. An Interim Dividend of 25% was distributed in November, 1914, and after providing for depreciation and all Royalties, there is a balance remaining of $252,106. Out of this sum a second dividend of 25% was distributed on May 29th, 1915, and $18,000 provided for Administration Costs, leaving a balance of $109,106 to be carried forward to the next year's account.

Since Milling Operations commenced in 1910 the following dividends have been paid:—1910, 25 percent; 1911, 50 percent; 1912, 50 percent; 1913, 50 percent; 1914, 50 percent.

The report was signed by H. Collbran, President of the Company.

Suan Concession, Holkol, Chosen (Korea)

The following report of the workings of the Suan Concession was presented for the year ended December 31st, 1914: The year's work afforded an operating profit of $413,300.87. The Suan Mine Ore Reserve stands at 236,536

Working and Profit and Loss Accounts for the Year Ended 31st December, 1914

Dr.		*Cr.*	
To Mining Costs	$102,130.06	By Bullion Proceeds...	$485,219.67
,, Sorting and Transportation of Ore...	7,109.01	,, Concentrates:— 1,472.40 tons	215,962.08
,, Milling Costs	74,713.14	,, Ore Proceeds	2,520.00
,, Balance Carried Down	519,749.54		
	$703,701.75		$703,701.75
,, General Expense...	$67,600.92		
,, Concentrate	38,847.75		
,, Royalties and Taxes	10,446.75		
,, Balance Carried Down	402,854.12		
	$519,749.54	,, Balance Brought Down	$519,749.54
,, Royalty payable to the Korean Syndicate, Limited	$32,228.33	,, Balance Brought Down	$402,854.12
,, Directors' Fees ... ... Following declaration of interim dividend of 25%, but not including anything due on declaration of final dividend.	18,000 00	,, Interest, Discount, and Exchange	4,597.40
,, Buildings and Improvements, &c.:— Amount written off	18,310.66		
,, Depreciation on Mines and Property	20,000.00		
,, Balance...	318,912.53		
	$407,451.52		$407,451.52

tons, valued at $3,040,850 after 82,472 tons were taken from the mine for the mill. The Tul Mi Chung Mine Ore Reserve was increased during the year to 963,600 tons (including some ore not yet fully blocked out) valued at $11,904,645.00. A combined Gold and Copper extraction of 80.04% was obtained at the Suan Mill as against 72.65% for the previous year, the copper extraction being increased from 20.5% to 56.2%. The Pyeng Yang Electric Power Plant has been completed and the change from steam to electric motive power was made early this year.

Excellent results were obtained from the Prospecting work conducted elsewhere on the "Collbran Contact," notably at the Kyung Chai Kol and Tuck Kol Prospects where 6,000 tons of ore carrying $1.40 per ton and 4.2% Copper were developed, and at the Soctarie Prospects where it appears an enormous tonnage of low grade ore will soon be available. The coming year gives every promise of exceeding the results obtained any previous year and can be looked forward to with much interest. The operating costs, viz., $3.90 per ton of ore milled, show a decrease of $0.23 per ton as compared with the costs for the previous year.

In the Suan Mine, the total development work, consisting of Tunnels, Drifts, Winzes, and Raises amounted to 7,138 feet, which, added to the previous 28,563 feet gives a total to December 31st, 1914, of 35,701 feet. Early in November a large flow of water was encountered in Level No. 6, with which the pumps were unable to cope, making it necessary to discontinue the work on this level. A large pump is now being installed and the development work will shortly be resumed. On account of the greater quantity of water to handle it was necessary to draw heavily on the broken ore reserves, which were decreased from 53,335 tons to 35,606 tons. The ore reserve at February 15th, 1915 was as follows:

	Tons	Gold $ per ton	Copper %	Bismuth lbs. per ton	Gross value per ton	Gross value
Positive	185,189	$9.07	1.16	1.7 lbs.	$12.87	$2,384,123.00
Probable	51,347	$9.37	1.0	1.7 ,,	$12.79	656,728.00
Total	236,536	$9.13	1.12%	1.7 lbs.	$12.86	$3,040,851.00

Distribution:—Gold, $2,160,785.00; Copper, $638,799.00; Bismuth, $241,267.00.

[Ton, 2,000 lbs.; Copper at 12 cents per lb.; Bismuth at 60 cents per lb.]

The "Central Ore Body" has now been worked out and the "Western Ore Body" reduced from 19,750 tons to 7670 tons. The net increase of 3,500 tons was confined entirely to the "Eastern Ore Body." No ore was developed on Levels Nos. 5 and 6 during the year but these workings are now reaching the ore zone and will prove whether or not the main ore body or additional ore lenses will be found with depth. Prospecting to the north-east of the "Eastern Ore Body" indicates the existence of another ore lens in this direction.

Stoping:—The 74,450 tons of ore milled for the year obtained from above adit Level, 37.4 per cent; below adit level, 62.6 per cent.

A larger quantity than usual of low grade ore was milled during the year from the upper workings, viz., 37.4%, but in spite of this the gold value of the ore milled was only $0.29 per ton below the average value of the reserve. As only 17% of the ore reserve remains above the main adit level you may confidently expect a substantial improvement in the grade of the ore milled this coming year.

In ore sorting 7,922 tons were discarded as waste in the sorting house, which represents 9.6% of the ore received from the mine. The cost for sorting amounted to $3,708.87 or 4.97 cents per ton of ore milled, and assuming the discarded waste had no value, the ore sorting had the effect of increasing the gold content of the ore milled $0.86 per ton.

The actual running time of the mill was 338 days, 15 1/3 hours (or 92.77%), 74,550 tons of ore being treated, as against 327 days, 17-1/2 hours (89.63%) and 71,535 tons for the previous year. The stamp duty per 24 hours was 5.5 tons. After a series of tests a flotation process was installed for treating the pulp from the tube mills. This was put in operation toward the end of April and the copper extraction was then increased from 20% to about 75% and the gold from 82% to about 88%. The total yield from the mill was $701,181.75 as against $671,536.63 for the previous year.

A total of $18,310.66 was expended for improvements and construction. This was largely made up by miscellaneous improvements at the Suan Mine and Mill and the re-building of the Tam Bowie wagon road after the heavy floods in July. A road has been completed to the Whang Hai Province boundary line and about three miles remains to connect this road with the Tul Mi Chung road at Pami Chang. The heavy rains during July caused a great deal of damage to the road and destroyed several bridges which have not yet been replaced. The sum of $5,000.00 was paid to the Chosen Government, completing the promised contribution toward the cost of this road. During July over 20 inches of rain was recorded at Holkol which caused great damage to the wagon roads. The rainfall for the year was 64.85 inches as compared with 23.35 inches for the previous year.

The Tul Mi Chung Mine

The development of the Tul Mi Chung property has progressed most consistently and has resulted in a large increase of the quantity and value of the ore reserves. During the year the sum of $229,456.87 was expended for this work and for surface improvements. At the end of the year the capital expenditure stands as $358,647.77. A total of 11,958 feet of driving, crosscutting, sinking and raising was done for the year which, added to the previous footage, gives a total of 22,172 feet up to December 31st, 1914. Two new ore bodies were developed during the year, one in Tunnel No. 6 and one in Tunnel No. 1, making seven ore bodies or lenses in all. Level No. 1, the deepest working on ore, is in excellent condition and is giving great promise.

The total ore reserves with copper calculated at 12 c. per lb. was:

	Tonnage	Estimated Gross Value
Tul Mi Chung, February 1st, 1915	963,600	$11,904,645
Suan February 15th, 1915	236,533	3,040,850
Kyung Chai Kol, February 15th, 1915	5,000	55,040
Tuck Kol, February 15th, 1915	1,000	13,840
Total... ...	1,206,133 Tons	$15,014,375

Electric Power Installations

The Power Station at Pyeng Yang, transmission lines and motor installation were not completed until the end of the year on account of the high floods, which delayed the transportation of the material and washed away a section of about 100 poles of the transmission line. Early in the present year the change from steam to electric motive power was effected at the Suan Mine and Mill and the plant is now working very satisfactorily.

Up to the end of the year a total of $377,-104.57 has been expended for the Power Plant at Pyeng Yang, transmission line to the Suan and Tul Mi Chung Mines, sub-stations, motor equipment at the Suan Mine and Mill and the Motor equipment for the Tul Mi Chung Mine and Mill (the latter have yet to be installed).

With the use of electric power at the Tul Mi Chung Mine and Mill it is expected the cost of power on the Concession will be less than $50.00 per horse-power year, as against the previous steam-power costs of $110.00 per horse-power year.

Recommendations of General Manager A. H. Collbran were as follow:

"It is evident that in the near future you will be warranted in providing for the installation of a second unit at the Tul Mi Chung Mill, but it will be advisable not to do this until the first unit is in operation. This will require the addition of another 1,000 K.W. unit at the Pyeng Yang Power Station.

"The field for prospecting presents unlimited possibilities and this work should be pushed with the greatest vigour. The Nam Nori Prospects will be placed under individual foreign supervision and the development work continued with depth. The Soctarie Prospects require a large amount of work and the development will be concentrated at the most favourable points."

Balance Sheet, December 31st, 1914.

Dr.

To Capital (Authorized and Issued):—		
20,000 Shares of $25 (U S. gold) each	$500,000.00	$500,000.00
,, Premium on 4,000 Shares		400,000.00
,, Issue of $250,000.00 8% Coupon Notes:— First half issue, dated 1st August, 1914		125,000.00
,, Sundry Creditors		180,131.02
,, Profit and Loss Account:—		
Balance as per last Balance Sheet...	188,411.91	
Add Korean Syndicate participation in Tul Mi Chung Expenditure for 1912	2,825.79	
	191,237.70	
Less Final Dividend of 25% for 1913, making 50% for the year	115,043.75	
Directors' Fees 36,000 *Less* Paid on declaration of interim dividend...	133,043.75	
Net Balance carried forward to 1914 account ...	58,193.95	
Add Profit for the year as per statement ...	318,912.53	
	377,106.48	
Less Interim Dividend of 25% declared in November, 1914	125,000.00	
		252,106.48
		$1,457,237.50

Cr.

By Mines and Property:—		
As per last Balance Sheet	$340,000.00	
Additional Expenditure ...	13,187.60	
	353,187.60	
Less Depreciation	20,000.00	
		333,187.60
,, Tul Mi Chung Mine Development		358,647.77
,, Electric Power Installation ...		377,104.57
,, Prospecting ...		29,493.22
,, "Collbran Contact" Survey ...		1,733.64
,, Contribution to Government Roads		10,000.00
,, Metallurgical Examination, Cables		11,548.87
,, Concentrates in Transit and in Hand...		161,352.99
,, Sundry Debtors		10,449.88
,, Store of Materials and Stores on Hand		76,008.40
,, Cash at Banks and in Hand ..		87,710.56
		$1,457,237.50

To the Directors of The Korean Syndicate, Ltd.

We have examined the above Balance Sheet of the Seoul Mining Company with the books, vouchers, and accounts of the Company, and have obtained all the information and explanations we have required.

Subject to our Report to you of this date, in our opinion, such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Company's affairs, according to the best of our information and the explanations given us, and as shown by the books.

(Signed) LOWE, BINGHAM & MATTHEWS,
Auditors.

Electric Power Plant—Report for 1914.

The report of Mr. H. Maki on the Power Plant follows:

The early part of the year was not suitable for out-door work on account of the weather but telephone communication was established between Holkol and the Pyeng Yang Power Station and the erection of the steel work for the power house building was completed during May. The reinforced concrete stack was begun in April and completed in June. The extraordinary rise in river at the power plant site caused a month's delay in the transportation and landing of the machinery. Also construction material was delayed in being transported from Japan and from Tsingtau on account of the withdrawal of steamers due to the war outlook. The work was hastened by 13-hour working days. The establishment of a police service at the plant site prevented any loss of material or supplies.

The transmission line from the generating station to the Half Way House was completed in May and the extraordinary flood in July washed away four miles of the transmission line near the Half Way House. Some of these poles were later found at Pyeng Yang and at Chinnampo. A re-survey of the transmission line was made and the destroyed section of the line was moved to the side of the valley upon some higher ground. The second flood which occurred, caused no further damage.

At the time of the flood some of the equipment was being transported up the River to Tam Bowie and the heaviest transformers were under water when placed 15 feet above the usual water level of the river. These were carefully dried out at the Soctarie Sub-Station and no injury was done. All insulators used on the line were carefully tested at the factory with three times their normal voltage. The wires were strung with a suitable sag to stand the cold weather. The severe cold, 33 degrees below zero (Centigrade) did not cause a single break to wires or insulators at the full voltage of 44,000.

The telephone wires are twisted every ten poles and for facility for inspection switches are provided for the use of a portable telephone every three miles and regular telephones are installed every eight miles. The power wires are divided into six sections at which points disconnecting switches are provided and a complete twisting of the wires is made in order to balance the circuit. The telephones give good service without the humming noise. The transmission line was completed and made ready for use in October.

The Generating Station equipment consists of 3 batteries of water tube steam boilers with superheaters and chain grate stokers, 2 steam feed water pumps, 2 steam feed water heaters, and 2 stoker engines.

In the Generating Room are two 1,000 R.W. turbo generating sets with direct connected exciters, five switchboard panels mounted with instruments to control electric power and speed of turbines, one outgoing 44,000 volt electric driven oil switch, four 400 K.V.A. power transformers, four 30 K.V.A. auxiliary motor transformers, two Electric motor driven surface condensers, two Electric motor driven intake pumps, one Electric motor driven 5-ton wharf crane, one 12-ton travelling crane and one Small workshop with lathe, drill, &c.

One wooden pole line was erected for the transmission of 44,000 volts, 3 phase current from generating station to Pami Chung, a distance of 34 miles, from which point the lines diverge to the Soctarie and the Tul Mi Chung sub-stations, where the voltage is stepped down to 440 volts for the motors. The Soctarie sub-station is equipped with four 150 K.V.A. power transformers, four 150 K.V.A. stepping down to motor voltage transformers, three switchboard panels with instruments to control incoming and outgoing power and measuring instruments, and 16 different sized mill motors with panels.

The Holkol sub-station is equipped with four 75 K.V.A. air compressor motor transformers, two panels with instruments for controlling incoming power from the Soctarie sub-station and synchronous motor of 210 H.P. for air compressor.

The Tul Mi Chung sub-stations are in course of construction and the power and telephone lines completed, having passed the Government examination.

The generating station was ready to operate one 1,000 K.W. generating set in October, having passed the Government examination and also the hydraulic test for the boilers at double working pressure. Under a special permit from the Authorities power was transmitted previously to dry the transformers, while the generating plant transformers were dried by hot air and electric power. This was a very slow but safe process. During December the regular Government permit was given to operate the entire system, each turbo unit having been successfully tested at a 25 percent overload for three hours and its performance attracted the admiration of the Inspectors. The transmission line and sub-station equipment stood the test in accordance with the electrical regulations and not a single break or other disturbance occurred.

IMPORT SALT TO CHOSEN

Chosen imported during last November 22,495,900 *kin*, worth Y101,190, of salt. The grand total since the beginning of the year amounted to 176,260,900 *kin*, worth Y789,233. Shantung and Kwantung salts contributed the largest shares. About Y250,000 worth of salt is smuggled into the Peninsula from Takushan way through the medium of the Korean fishermen operating off the mouth of the Yalu and off the northwestern coasts of Chosen. The aggregate imports for the 11 months exceed Y1,000,000 and compared with the corresponding period of last year an increase by about 60,000,000 *kin* is noticed. Adding to the above the amount to be shipped during the current month, an excess of 70,000,000 *kin* is believed to be experienced over the previous year. During the latter half of 1914, the export of Shantung salt was necessarily suspended because of the siege of Kiaochou, whilst the business was revived on the return of Spring as order was restored in the war zone in Shantung.

THE JAVA CANE SUGAR INDUSTRY

The report of the Netherlands East Indian San Francisco Committee of the Department of Agriculture, Industry and Commerce on the Java Cane Sugar Industry shows a rapidity of growth almost startling. In 1888 Java's total production was estimated at 300,000 long tons. Ten years later it had reached 700,000 tons and twenty years later it reached 1,200,000 tons and in 1911 it had reached over 1,400,000 tons, falling back slightly for 1912.

These rapidly rising figures of production in a complex industry like sugar are startling evidences of the value of the methodical study that the Dutch people of Holland have thrown into their work in their island possessions, as well as in their own homes in the lands they have rescued from the sea. Even the English colony of British Guiana, where the Demerara sugars have developed a demand for their notable crystals, was started in its sugar production by the Dutch, who at one time controlled English Guiana and still control the adjacent colony of Surinam.

The report above refers to the Java sugar industry, but the committee have issued quite a large number of bulletins concerning various phases of Dutch industrial life, more particularly in the Far East. In 1912 there were 184 factories working in Java with 347,000 acres of cane under cultivation, producing 1,384,000 long tons of sugar. The area occupied in the cultivation of cane in general is much greater than the proportions of the figures here given, for the cane requires twelve months for its growth and planting goes on simultaneously with the harvest season. In fact, it is estimated that a million of the 1,200,000 acres of the lands were in control of the sugar industry in 1912 to cover the 347,000 acres that were being cultivated for present delivery. Various other crops are planted in Java, the cane crop being planted every year, or at least but one crop is gathered and then the land is put in some other crop and cane may be put in again in the second or third year.

The Dutch government began the industry more than eighty years ago by compulsory order, protecting the natives in all their rights and giving them the alternate use of the lands, but requiring them to be planted in sugar cane in regular rotation and the natives to be compensated for their labor. As the island has quite a large population the whole plan seems to have worked out extremely well, as indicated by the rapidly increasing figures that we have already given. The actual compulsory system did not last very long, but sufficiently long to start the industry along the lines of success that we have indicated.

The sugar industry in Java is almost exclusively carried on in irrigated fields, the irrigation works being the same as those in use for the cultivation of rice, while the right of employing these works is included in the rent of the land. A cane crop takes about 15 to 17 months in time during which the European manufacturer may occupy a field, but cannot exceed the above period, the native farmer using the land before and after that time. More than a century ago large tracts of land were sold here and there in Java and such owners are now quite free to plant and irrigate as they may choose.

In regard to the matter of labor, the cultivation in Java is carried on most intensively during the greater part of the year and demands an important labor force. The sugar estates being as a rule in densely populated districts in the low land, it is generally not difficult to get the necessary laborers, but in newly cultivated districts, or on perpetual lease holdings in thinly populated districts, it is almost impossible at times to get an adequate labor supply. During the rice harvest and at other times when public works are being constructed, there is considerable difficulty, but on the whole Java, as contrasted with other cane growing countries, occupies a favored position.

Heavy work is done exclusively by men. The lighter work such as cutting tops, planting, watering, weeding and supplying, by women, while children are only used for destroying insects and similar light work. The seed of the crop consists of the tops of the sugar cane, which measure a few joints and as a rule carry three buds or eyes. They are cut from the ripe cane at the time of its being crushed and also from cane intentionally planted for this purpose and which is still in an unripe state.

The seedlings used for planting are cut in pieces having three eyes. The trash is stripped off, those infected with insects or fungi or those which are shriveled and sickly, are collected and condemned, while the sound ones are disinfected by means of a Bordeaux mixture with 96 per cent. water, which kills any adhering traces of parasitic fungi. The cuttings are laid down in rows lengthwise and horizontally, one after the other and with their eyes on the sides and then covered with earth, after which they are irrigated, which is repeated every three to five days. Afterwards the intervals are longer and this continues until the cane has grown up well. As the stalks of the cane develop they are banked up. The secondary stalks sprout, the formation of roots is hastened and the plants now stand firmly in the ground.

With the second and third banking or working, the fields are manured, on which process a great deal of money is spent in Java. A few years ago the manures were exclusively nitrogenous material, while potash and phosphoric acid were considered of no use. Now it has been found on closer inspection that many fields are poor in phosphoric acid and this kind of manure is beneficial to such fields. Potash is said to be present in the Java soil in a sufficient quantity. As soon as the leaves shade the ground the weeds die out. The fields of cane grow to about 13 feet in height.

Under the compulsory system, between 1830 and 1879, Java sugar was shipped exclusively to Holland. Afterwards a large quantity of sugar was exported to England, where a dry, gray sugar 15 to 20 Dutch Standard, was desired. Of the lower grades some went to England, but they found their way chiefly to China and other eastern markets. After 1890 the American market displayed an increasing interest in Java sugars and from 1896 to 1900, especially during the Spanish war, America bought the greater part of the Java crop. For many years a small quantity of white sugar has been made in Java for home consumption, but the manufacture of this article for exportation dates from the year 1903, when a shipment of a thousand tons was forwarded to Karachee. This was a success, and ever since the sugar factories in Java have been manufacturing white sugar for the British India market. After a short time they succeeded in supplying a faultless white article, without greater factory loss than was suffered in the manufacture of Muscovado. In 1911, owing to the drought in Germany, white sugar was also shipped to England.

LIKIN ON THE TIENTSIN-PUKOW RAILWAY

"K.D.S." writing in the *British Chamber of Commerce Journal*, says: "In September, 1913, all likin stations on the Tientsin-Pukow Railway were abolished, and the Railway Administration in order to compensate the provincial authorities agreed to hand over 6 per cent. of the goods traffic receipts. This arrangement remained in force till June 1st, 1915. On that date twenty-seven likin stations were set up once more and foreign goods traffic in the "up" direction has practically ceased. It could not stand the burden of likin.

"As a result the Tsingtau-Tsinanfu Railway, on which no likin is charged, has secured the greater part of the cargo sent from Shanghai to Tsinanfu; it has been found most difficult indeed to cope with the demand for freight on this line. This now forms the cheapest route for piece-goods from Shanghai, the rate of freight from Shanghai to Tsinanfu being about $10 per ton.

"The Tsingtau-Tsinanfu Railway is deliberately competing against the Tientsin-Pukow Railway. This may be seen from the fact that, while freight for intermediate stations remains the same (Tsingtau to Chowtsun for instance being 70 Mexican cents per 100 kilos), the freight from Tsingtau to Tsinanfu has been reduced to about half the old rate and is only 40 cents per 100 kilos. It is in fact cheaper for goods consigned to Chowtsun to travel first to Tsinanfu by rail, and then back to Chowtsun by bullock cart.....

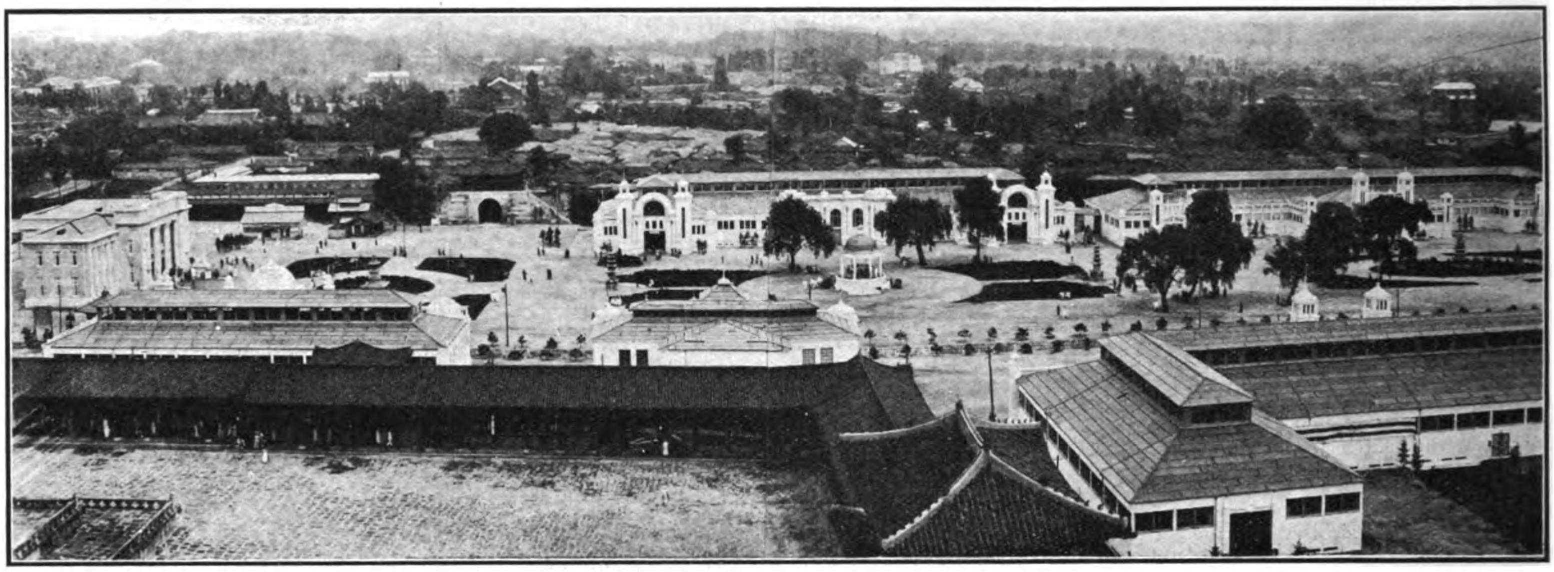
"The freight on the Shanghai-Nanking and Tientsin-Pukow Railways is about $9.00 a ton. It will thus be seen that the freight by this route is about $1.00 a ton cheaper than by the Shanghai-Tsingtau-Tsinanfu route, even at a moment when freights on the Tsingtau-Tsinanfu section have been reduced to a minimum.

"The freight on the Shanghai-Nanking Railway and Tientsin-Pukow Railway route could easily be reduced still further for a regular business, especially in such items as coolie and boat hire at Nanking. It is doubtful if the Tsingtau-Tsinanfu freight would stand much further reduction.

"We now come to the real difficulty in the situation. The likin on the Shanghai-Nanking-Tsinanfu line amounts to about $20.00 a ton, or say twice as much as the entire transport charges. In consequence no piece-goods business goes by this route to Tsinanfu, and the Chinese officials have killed the goose that lays the golden eggs.

"A point for the Chinese Government to note is that before the war the headquarters of the piece-goods firms were in Tsingtau. They have now been transferred to Tsinanfu. If the Chinese Government wish the firms to remain in purely Chinese territory at Tsinanfu and not to be re-transferred to Tsingtau, they must give the firms an alternative route for the transport of their goods. If they persist in the present policy of extortionate likin charges, the firms will inevitably go back to Tsingtau immediately the political horizon becomes more settled.

"From the difference in favour of the Shanghai-Nanking Railway and Tientsin-Pukow Railway route, as compared with the Tsingtau route, it is evident that the Chinese Government could still receive a reasonable sum in taxation by charging an equitable percentage on freight on the lines of the policy in force between September, 1913, and June, 1914. At present they receive practically nothing."



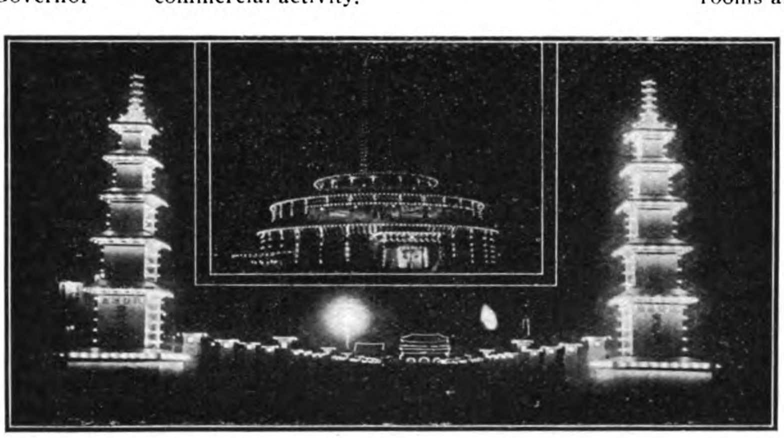
PANORAMA OF CHOSEN EXPOSITION HELD IN GROUNDS OF THE OLD PALACE AT SEOUL

EXPOSITION SHOWS KOREA'S PROGRESS

The progress of Korea during the ten years since the Russo-Japanese war was remarkably set forth in the recent exhibition held in Seoul, presenting in concrete form many subjects outlined in reports of the Governor General of Chosen which have been abstracted and published from time to time in the "Far Eastern Review."

The exhibition was to celebrate the completion of one thousand miles of railway in Chosen. It really represents much more than a thousand miles since a great part of the present mileage has been laid twice, owing to improvements in the line which was roughly constructed in the first place for the transfer of troops in the Russo-Japanese war while the line as now operated compares favorably with the older and more carefully planned lines of Japan. Report of the Railways for 1913-1914 of Chosen will be found in this issue.

The exposition was a constant surprise and revelation to the many foreigners who visited it as a side trip from Japan. As its setting was the ancient city of Seoul in which the Japanese have made many lasting improvements in the construction of roads, widening of streets, erection of monuments, to say nothing of the general beautification of the former parks and the creation of several new ones, while leaving certain quarters of the city probably as they were before Japanese occupation, visitors were given a superb opportunity for comparing the new and the old in Korea, the "morning calm" of which has been succeeded by the modern bustle of commercial activity.



NIGHT SCENE SHOWING ENTRANCE—RAILWAY BUILDING ABOVE

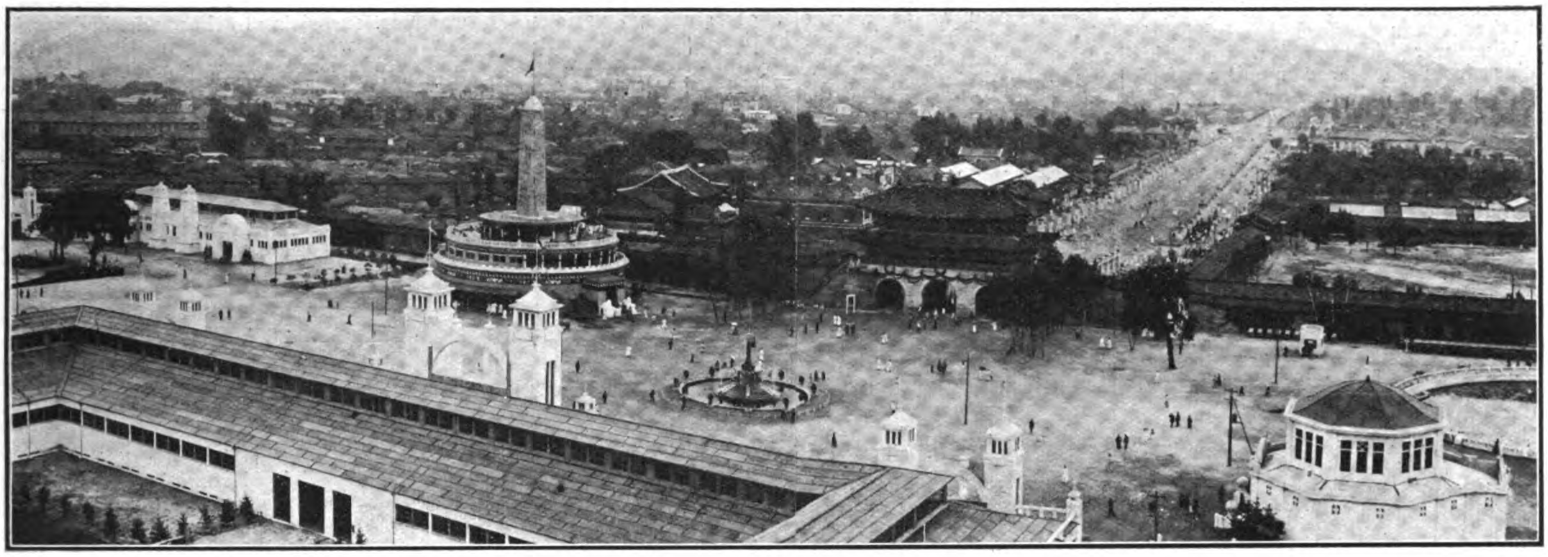
Visitors to the exposition, many of whom made it a side trip from the Coronation ceremony in Japan, were entertained at the new Chosen Hotel. This hotel is the latest refinement of Japanese experience in hotel building and being operated under the management of the Chosen Railways, leaves little to be desired in the matter of beauty or utility and comfort of guests. The hotel occupies a commanding site in the city of Seoul and is located in what was formerly a part of the precincts of the Temple of Heaven, in the heart of the old Korean capital. Most of its rooms are equipped with private baths and the reception halls, lobby, reading rooms, billiard room and bar are furnished in magnificent yet tasteful style. The hotel is only a short distance from the principal consulates and faces the post office and principal banking establishments. The effort of the Chosen Railway Administration to provide proper quarters for the ever increasing number of foreigners who are being attracted to Seoul, has been carried out most successfully and the verdict of visitors to the exposition was that the new hotel is equal to any in the Far East and provides all the comforts that the tourist has come to expect in traveling not only in the Occident but in the Orient as well.

The exposition was held in the old South Gate Palace, one of the most interesting sights of Seoul, and was itself housed in many new buildings in exposition style, some of which are to be permanent. As agriculture is the chief industry of the Koreans, visitors entering the grounds soon located the grand pavilion devoted to all kinds of grain and products of the field. Rice of every kind and variety, as grown in every province, on all sorts of soils, is shown and duly labelled, to

ONE OF THE AGRICULTURAL EXHIBITS

POLICE AND PRISONS EXHIBIT

IRRIGATION AND RICE CULTURE EXHIBIT



Exposition Grounds showing the Circular Railway Building and the Old Palace Gate

prove which is best for certain conditions. Beans and their many products occupy much space. The exposition of cotton showing the replacement of the old Korean cotton that was almost an economic loss, so small was the yield, was made even more remarkable when contrast between 1906 and 1914 was observed. In 1906, Korea produced scarcely 25,000 kin (Kin equals 1-1/3 pounds) while in 1913 more than 130,000 kin was produced. Tobacco, also of an improved variety from America, has been brought up from its position among the minor crops to an output that now practically supplies the Korean demand.

The silk worm, its breeding, culture and products together with the machanical operations of spinning and weaving, were illustrated in the remarkable series of exhibits which showed the value of science as applied to the economics of silk production, since no haphazard methods of breeding are permitted, but every moth is examined under the microscope before being mated, although these same moths are the highest types of a carefully selected series.

The Ginseng monopoly which yields more than a million yen of revenue to the government was well set forth in exhibits of a practical nature intended to train the farmer in the proper culture of this important medicinal plant. In the horticultural division were shown not only the native fruits, but apples, peaches, pears, plums, grapes, and berries of various kinds, originally brought from the United States, were shown to be thriving in their adopted soil. In connection with this, exhibit methods of using the fruit, such as packing and canning, were set forth while attached to each exhibit was an expert who could be consulted by growers as to the best methods for increasing their yields or conserving their trees. Models of the reforestation operations in which tens of millions of trees are being planted annually were shown and modern forest tree nursery methods illustrated in detail.

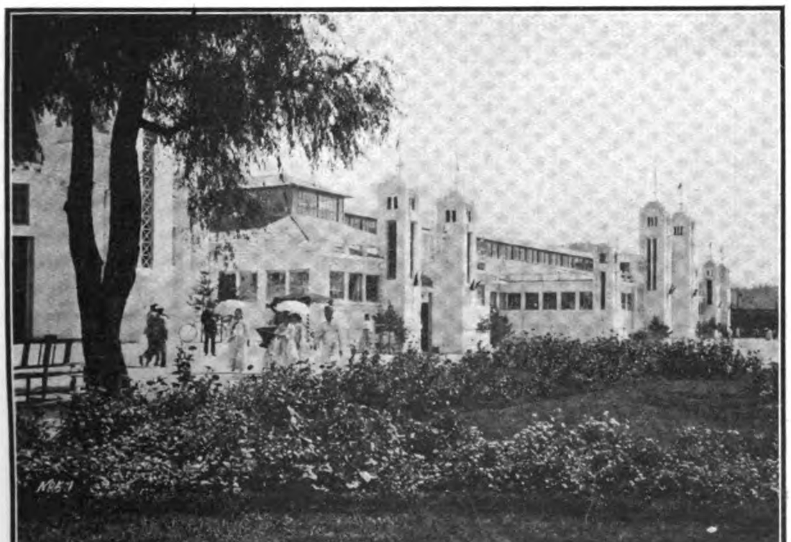
The great importance of this reforestation will be seen when it is known that the total area of mountain and forest lands in Chosen is sixteen million cho, of which eleven million is practically treeless, two million of this latter area being absolutely barren. Despite this, there are still some forests in Korea and the showing of fine timber in the exposition seemed rather to contradict the necessity for reforestation.

In marine products, an excellent display was made, especially by the Fisheries Guild that is the largest factor in this industry. Despite that more than twenty-six thousand persons are enrolled in this organization which owns six thousand six hundred fishing boats, the catch of fish is far short of the demand and the importation of fish into Chosen is upwards of half a million yen annually, so that the authorities are doing everything they can to extend this industry.

Korea as a mining country is very favorably known to a great many stock-holders in the United States, England and France, whose money has enabled several foreign companies to develop the gold and copper mines of Chosen and visitors to the mining exhibit were shown a fine array of geological specimens. Economic minerals were shown in a mountain of gold bearing quartz with great blocks of copper and silver ore, graphite, iron, emery, and every kind of coal from peat to anthracite. In connection with this exhibit of products was one of methods, in which were gathered together models of smelting furnaces, refining plants, large scale models of mining operations, as well as geological models of the country including one showing the longest tunnel in the country.

An interesting feature of the electrical exhibit was a real water-fall which drove a turbine coupled to a generator set, the power being distributed to various classes of machines, from sewing machines to flour mills, thus illustrating to the Korean what can be done with the many rapid rivers whose power now is practically entirely neglected.

The Railway Pavilion was a structure of circular ground plan with a central tower that made it one of the dominating features of the exposition. In it were many beautiful landscapes showing the special points of interest along the routes, while large-scale maps and models of bridges served to show the working of the railway proper. A huge relief map showing Northern Asia and part of Europe, enabled visitors to see the importance of Korean Railways as regards both Japan, Siberia and China. Considerable attention was



Manufactures and Liberal Arts Building

Building for Educational Exhibits

given to the electrical side of the exhibition and the scene in the grounds at night when the buildings were illuminated, was quite brilliant. Aside from the large number of foreign visitors the exposition attracted to Korea, it was an economic success whose value cannot be measured for years to come since it gave the Koreans an opportunity of viewing their country as a whole, of studying various activities undertaken by the Japanese Government in their behalf and furnished them with a living contrast of modern as against the old methods before their "morning calm" was ruffled by the energetic Japanese coming in from the East. The exposition marked a progress in education and material benefits that was most surprising to those who had not followed the work of Japan in Chosen during the decade since the war with Russia, and served as a monument to the endeavors of the Japanese in the reformation of this "backward nation" which is now to all intents and purposes, as well as politically, a part of the Japanese empire.

CHOSEN RAILWAYS REPORT FOR YEAR ENDING MARCH 1914

[Presented to the Governor-General of Chosen by the Director of the Railway Bureau]

The average working mileage of the Chosen Railways for the year in passenger traffic was 910 miles and that in goods traffic 911.1 miles, showing increase of 107.1 miles in the former and 113.8 miles in the latter over the preceding year. The train mileage totalled 3,570,366 miles, the number of passengers carried, 4,005,441 and tonnage of freight hauled, 1,388,915 tons, showing increases of 554,379 miles in train mileage, 596,419 in passengers, and 283,553 tons, in freight, compared with the figures for the preceding year. The aggregate passenger and freight mileages were 173,743,488 and 123,427,673 respectively, being an increase of 8,708,937 in the former and of 23,145,173 in the latter over the preceding year. The receipts for the year were Yen 3,815,806 from passengers and Yen 2,534,042 from freight, making a total of Yen 6,349,848 and showing an increase of Yen 522,880 over the preceding year.

The fine results attained were due to the increase in traffic mileage which naturally caused economical development in the peninsula and absorbed new traffic; also the different arrangements made to induce passengers and goods traffic apparently had much to do with securing such results. The bright condition in passenger traffic prevailing since the end of the preceding year continued, and the standard of living in general gradually rose, resulting in the success enjoyed in running excursion trains to Sodo and Kaijyo. Though traffic was rather low during the summer, in autumn it increased owing to the transportation of soldiers stationed in Chosen for their manœuvres, parties of school boys to see them, and visitors to exhibitions at Taikyu, Heijyo, and Chinnampo; besides, the opening of the Japan-Manchuria through passenger traffic in May and the Japan-China through passenger traffic in October brought us a new field of work and our prospects in this line of transportation are very hopeful. In goods traffic, a one-third reduction in customs duty which had been under consideration for years was put into force, and the reduction in freight rates for goods to Manchuria was put into force at the same time. Consequently the volume of such goods as cotton cloth, cotton yarn, flour, sugar, etc., transported over our line was much increased, though these goods were mostly sent by sea heretofore; exportation of Manchuria beans and grains to Japan was also partly carried on over our line. Transportation became still brighter by the abolition in July of the tax levied upon rice exported from Chosen to Japan. In January, 1914, the Japan-Manchuria through goods traffic was opened, thus laying hands upon the international through goods traffic. All these became factors in the development of the goods traffic, directly or indirectly.

The principal traffic arrangements made during the year were as follows: consequent upon the completion of the new pier at Fusan, the Fusan-Antung express was made to arrive at and depart from the pier since April to facilitate train connection with the channel steamers. In May the time-schedule for all lines was revised, extending the Fusan-Keijyo express to Antung and increasing the number of local trains on the Keijyo-Shingishu line at the same time. In September the Information Office of our Traffic Department was opened at Tokyo for the sale of tickets, registration of baggage and parcels, and giving information to tourists, all aimed at helping travellers for Chosen and Manchuria. As regards the joint traffic, in May the Japan-Manchuria through passenger traffic, as well as that between the Chinese Eastern and Usuri Railways and our lines, was opened, and in October the through passenger traffic between the Imperial Government Railways of Japan and our line and the Peking-Mukden line of the Chinese Government Railways was opened. Second class service on the Chosen-Manchuria express and the sale of express train berth tickets were started in November. In January, 1914, the Japan-Manchuria through goods traffic was opened. Besides, not a few extensions and improvements were made in the joint traffic between the Imperial Government Railways of Japan, South Manchuria Railway, and our line.

We attained a reasonable result from our station hotel business in consequence of improvements made in hotel equipments and the increase in passengers from the West to the East. We may also say that the increase in guests stopping at our station hotels lately is due to the comfort afforded them. The results were 1,134 guests stopped at the hotels, making 2,003 in the aggregate, 7,695 guests for meals, 511 guests for banquets, and Yen 18,721 in hotel receipts.

The dining car service on express trains and the refreshment-room service came under our direct management in April, 1913. Various improvements were made in the service and equipment which made them popular among Japanese and foreign passengers. Their results for the year were 33,254 guests and Yen 31,594 for the dining cars, and 10,025 guests and Yen 9,709 for the refreshment-room.

The store-house business was commenced this year; store-houses at Keizan and ten other stations were opened in July, and at Rensen and one other station in October. This business in Chosen is as yet in an undeveloped condition, and in only a few places are perfect store-houses established; consequently development has been very slow. But, by the opening of store-houses under our own management, consigners as well as the merchants in general have been much assisted and given great convenience in their business transactions. Though we could not expect to obtain conspicuous results in this direction at the beginning, we are sure of their efficiency and development in the future.

The locomotive mileage during the year totalled 4,160,119 miles and the converted carriage and wagon mileages 28,064,309 miles; coal consumed amounted to 185,761,845 kin for running and 18,002,870 kin for lighting, etc., being 203,764,715 kin in the total; oil consumed reached 90,289 sho for locomotives and 84,146 sho for carriages, wagons, etc., being 174,435 sho in the total. Compared with the figures for the preceding year, these show increase of 673,061 in locomotive mileage, 4,937,905 in carriage and wagon mileage, 6,581,898 kin in coal consumed for running, and 2,558,589 kin in that for lighting, etc., 13,165 sho in oil for locomotives, and 14,679 sho in that for carriages, wagons, etc.

Rolling stock returns show 154 locomotives, 268 carriages, and 1,538 wagons, being increases of 16 locomotives, 59 carriages, and 93 wagons.

The principal items of equipment and improvement made to rolling stock, etc. were the addition of 16 locomotives, 57 carriages, and 93 wagons, and the erection of 33 spans of girders, besides the equipping of two locomotives with steam brakes, three carriages with electric lights and fans, 114 wagons with air train pipes, and 15 with steam train pipes.

The aggregate length of electrical communication lines at the end of the year was 2,453 ri; telegraphic apparatus installed numbered 137, telephonic 934, and blocks 267. Railway telegraphic stations numbered 144; railway messages dealt with were 3,702,410, and public messages 247,777, being a total of 3,950,187. The revenue from public messages was Yen 8,250. Generating stations numbered 2, with engines of 830 h.p. in total capacity, and 466 k.w. in that of generators. Electric lamps numbered 34 arc and 6,297 incandescent, 7 of the former and 2,030 of the latter being supplied under contract. Besides, those installed in carriages numbered 1,975 in all.

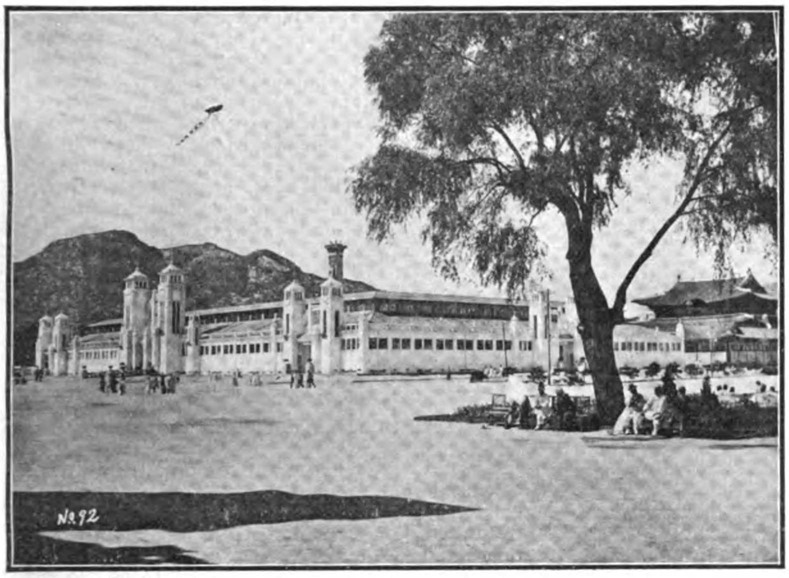
Traffic mileage at the end of the year totalled 970.2 miles and the aggregate length of tracks, 1,192 m. 13 ch., being increases of 133.2 miles in the former and 158 m. 66 ch. in the latter over the preceding year. The number of stations was 154, being greater by 23 than in the preceding year.

As regards the progress of construction works the following may be mentioned: on the Kei-Fu line the construction work of new shunting at Nandaimon Station was completed; on the Kei-Gi line alteration to Hakuba Station, new building of a compressed air station at Ryuzan, and transference of patients' room at the Ryuzan Railway Hospital were all completed; on the Heinan line the pier at Chinnampo was completed, and enlarging of every station is still in progress.

On the Kei-Gi line the construction work made striking progress and by the end of the year Ryuzan-Kenfutsuro (86.5 m.) and Gensan-Kozan (28.1 m.) sections were opened to traffic; in the direction of Ryuzan nearly all the work was finished, leaving only the gravelling to be done, while toward Gensan most of the bridging and tunnelling was completed, and erection of bridge girders and laying of rails are in progress. We are expecting the line will be open to traffic by August, 1914.

On the Konan line, Taiden-Seiyu and Riri-Kunsan sections (96.7 m.) were opened the previous year, and in January, 1914, the remaining portion was completed and the whole line opened to traffic. But as this line was constructed rather hurriedly, reconstruction is now in progress.

The Chosen Hotel is now in the course of erection in Hasegawacho, Keijyo, the foundations of it were laid during the previous year, and the laying of mains for water and sewage, and the skeleton of the main building were finished during the year now reviewed; the



Manufactures and Liberal Arts Building

Throng of Koreans Awaiting opening of the Gates

furnishing, electric installation, plumbing, and other equipments are now in progress.

Receipts relating to traffic during the year amounted to Yen 7,852,185 and expenditure to Yen 6,283,958, leaving a balance of Yen 1,568,227 as profit. Compared with the figures for the preceding year, the increase in receipts was Yen 1,034,922, that in expenditure Yen 319,563, and that in profit Yen 715,359.

In the railway store account, the earnings amounted to Yen 5,494,118 and the disbursements to Yen 5,493,559, leaving a balance of Yen 559.

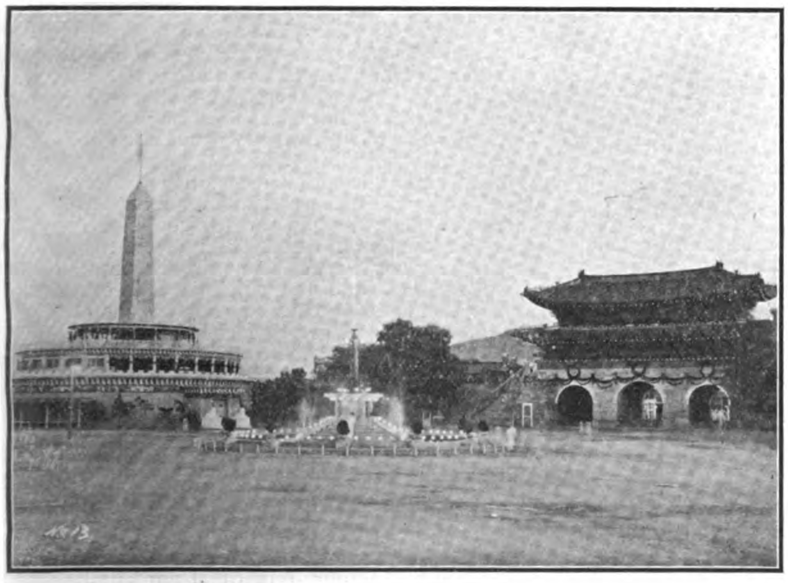
The value of contracts in the purchase of railway stores amounted to Yen 4,626,714, being an increase of Yen 163,983.

The capital invested in the railways since the commencement of their construction up to the end of the previous year totalled Yen 114,720,386. Adding to this the sum of Yen 8,661,648, which is the increase made during the year, the total capital invested up to the end of the year under review reaches Yen 123,382,034.

The members of the Relief Association numbered 4,712 at the end of last year; adding 1,630 newly admitted and deducting 1,075 withdrawals during the year, they numbered at the end of the year 5,267. The receipts totalled Yen 84,147; of this amount Yen 29,235 was the grant from the Government, Yen 45,950 represented subscriptions from members, Yen 8,957 interest on deposit, and Yen 5 miscellaneous receipts. The disbursements totalled Yen 32,175; of the amount Yen 7,365 was the grant made in regard to injuries, Yen 10,961 for deaths, Yen 6,446 for medical allowance and Yen 7,403 was refunded to members resigning. A sum of Yen 185,839, made up of Yen 51,972, the balance at the end of the year, and Yen 133,867 transferred from the previous year's account, was carried forward to the account for the year following.

Light railways and tramways in Chosen in operation at the end of the year were five, namely, the system operated by the Nikkan Gas Electric Co., and four others operated as private concerns. The aggregate capital of these light railways and tramways totalled Yen 10,426,600, of which amount Yen 5,748,695, was paid up, while the amount invested in them reached Yen 2,530,898. The mileage open to traffic totalled 23.7 miles, consisting of 16 miles of electric tramway in Keijyo, 5.8 miles of light railway between Fusanchin and Torai in Keishonando, 1.2 miles of manual tramway in Heijyo, and 0.7 mile of manual tramway for goods between Wakan railway station and the wharf on the Rakuto River. The mileage to be opened hereafter amounts to 181.2 miles, namely, 0.2 mile in Keijyo, 7 miles in Fusan (electric tramways), 115.2 miles between Torai and Keishu, Keishu and Taikyu, Keishu and Hoko, and Urusan and Choseiho, 13.4 miles between Shinshu and Senshin, 8.4 miles between Koshu and Shoteiri, 16 miles between Riri and Zenshu, 8.9 miles between Kanko and Seikoshin, and 12.1 miles between Seishin and Ranan (light railways).

In passenger traffic, in addition to the prosperous condition we have enjoyed since the end of the previous year, we had more people taking advantage of our excursion trains to Sodo and Kaijyo, besides a great transportation of troops, and trips by the crews belonging to the 1st Squadron. In May revision of the time-table for all lines was made, and express trains were run on to Antung and more local trains were run on the Kei-Gi line, all for the greater convenience of passengers. At the same time the Japan-Manchuria through passenger service was opened, thus laying hands on the international passenger traffic. Thus we can credit all these arrangements, besides many others, with being the cause of our traffic showing up so prosperously. Generally we have fewer passengers and diminished receipts during summer, and such was the case this year, too, though we suffered nothing from storms or rains. In autumn we transported troops for their manœuvres and a large number of schoolboys to see them. Special trains were run or reduction in fares was made for visitors to exhibitions at Taikyu, Heijyo, and Chinnampo, for excursions to the chestnut woods at Kaijyo, and for the annual meeting at Keijyo of the various Episcopal Churches and Miroku's great festival at Ronzan. In October the Japan-China passenger through traffic was opened and our con-



Railway Building and Old Palace Gate

Building for Fine Arts Exhibit

nection with the Peking-Mukden line was effected, bringing a greater number of passengers over our railways. In winter we had no particular business worth mentioning except the transportation of part of the troops stationed in Chosen, both relief and time-expired, though the weather was not so severe and we had the usual amount of passenger traffic. In the new year our traffic was rather low, as usual, owing to the cold weather and other causes, though the completion and opening of the Konan line added a certain degree of prosperity to the lines already opened.

Thus the results of passenger traffic during the year showed an average of 523 passengers and Yen 11.49, per day per mile being decreases of 40 in passengers and Yen 0.61 in receipts, as compared with the figures for the preceding year. These are due chiefly to the opening of new lines. The increase of 0.04 sen making 2.01 sen in receipts per passenger per mile, and decreases of 2.7 miles in average mileage per passenger and 4 sen in average receipt per passenger, making 34.8 miles in the former and 70 sen in the latter, are due to less transportation of tourist parties over long distances.

As regards the goods traffic, the quantity transported increased consequent upon the opening of new lines.

With reference to the transportation of important goods, we may say that the rice transported amounted to 161,000 tons, being more than 63,000 tons than in the previous year, in consequence of the abolition of transit duty on rice for Japan, importation of foreign rice into Chosen, and exportation to Vladivostock. The principal places to which rice was destined were Keijyo (44,000 tons), Fusan (37,000 tons), Kunsan (19,000 tons), and Jinsen (14,000 tons). The rice imported into Chosen is increasing in quantity, and demand for it is extending of late to the northern part though formerly it was restricted to the southern part only. The importation of millet has also much increased lately, showing 48,000 tons in quantity transported (40 per cent. more than in the previous year), 15,000 tons of it being by direct importation. The transportation of beans reached about 9,000 tons more than in the previous year notwithstanding the smaller crop and exportation. The demand for refined salt was active, too, and about 20,000 tons of it were sent from Jinsen. The consumption of coal in Chosen has considerably increased in consequence of the development in various industries and its transportation reached 169,000 tons, 49,000 of the quantity being from Fushun (about 200 per cent more than in the preceding year). We did not see any difference in the transportation of lumber as there was a great quantity of it imported from Manchuria and sent to Beiten, though we did not handle so great a quantity from the Yalu as in other years. As regards firewood and charcoal, we transported only 3,000 tons more than during the previous year as the weather was milder than usual. The transportation of graphite from Kokan and Shinanshu greatly increased during the year and reached 9,000 tons in the total, which is almost double that of the previous year. Besides, the transportation of flour, fresh fish, vegetables, fruit, cotton fabrics, straw bags, straw ropes, straw mats, and manure each reached about 10,000 tons, showing more or less increase than in the preceding year. The transportation of salted dried fish, mintai-fish, petroleum, and tobacco was rather low.

In the condition above mentioned, the average tonnage per day per mile was 371 tons and receipts, *Yen* 7.62, being an increase of 26 in tonnage and a decrease of *Yen* 0.22 in receipts compared with the preceding year. The decrease in receipts, notwithstanding the increase in tonnage, is the result of reducing the mileage rate in proportion to increase in distance. The decrease of 0.17 *sen* in average receipt per ton per mile, showing 1.91 *sen*, and the decrease of 1.8 miles in average mileage transported per ton and 18 *sen* in receipts per ton, showing 88.9 miles in the former and *Yen* 1.70 in the latter, were due to reduced transportation of railway supplies over short distances.

The results of passenger and goods traffic according to the different lines (details of which are given in tables annexed) are as follows:

Passenger

Line	Av. Traf. Mileage	No. of Passengers	Coaching Receipts	Av. Receipts per Day per Mile
			Yen	Yen
Kei-Fu	318.1	2,913,789	2,138,584	18.42
Kei-Gi	360.8	1,535,876	1,204,060	9.14
Kei-Gen	93.5	354,760	185,772	5.44
Konan	137.6	572,811	287,390	5.72
Total	910.0	4,995,441	3,815,806	11.49

Goods

Line	Av. Traf. Mileage	Tonnage of Goods	Goods Receipts	Av. Receipts per Day per Mile
			Yen	Yen
Kei-Fu	318.1	810,015	1,345.131	11.59
Kei-Gi	361.9	465,886	960.375	7.27
Kei-Gen	93.5	189,404	101,101	2.96
Konan	137.6	158,191	127,425	2.54
Total	911.1	1,388,915	2,534,042	7.62

Results of Station Hotel Business

The guests at the Station Hotel at Fusan and Shingishu during the year numbered 1,134, making when reckoned by length of stay 2,003. Meals served reached 7,695; and dinners 21, the guests at these numbering 511. The receipts at the two station hotels amounted to *Yen* 3,520 from rooms, *Yen* 11,485 from meals, *Yen* 2,778 from beverages, *Yen* 229 from tobacco, and *Yen* 709 from miscellaneous sources, making *Yen* 18,721 in the total. These show increases of 59 per cent. in guests, 12.8 per cent. when reckoned by length of stay, and 34.5 per cent. in meals, compared with the figures for the preceding year. Though we had an increase of 62 per cent. in the number of dinners served, there was a decrease of 31 per cent. in the number of guests, offset by an increase of 21 per cent. in receipts from the dinners.

We have made various improvements in accommodation during the year and put our hotel coupons on sale at Messrs. Thomas Cook & Son and the International Sleeping Car Co. for the convenience of passengers. These helped much in inducing guests to visit the hotels; the brighter condition of the traffic between Europe and Asia, too, naturally increased the number of guests at the hotels.

The dining-cars and the refreshment-room at Nandaimon Station were at one time managed under contract; but since April, 1913, we have taken them under our own managements in various points for the convenience of passengers. The guests we had in dining-cars during the year were 33,254, and the receipts, *Yen* 31,594. The guests at the refreshment-room numbered 10,025, and the receipts amounted to *Yen* 9,709.

The warehouse business is a new line, and warehouses were opened at Keizan and ten other stations on July 1, and at Rensen and one other station on October 15. The warehouse business was in an infant state and greatly obstructed industrial progress. But since the opening of warehouses under our own management, merchants in different localities are utilizing them to their fullest extent. Though we can not yet show startling results in this new line of business, we issued 807 dock warrants against 1,210 deposits of goods, about 70 per cent. of the dock warrants being issued as security to bankers, etc. The principal goods deposited in the warehouses were grain, straw ropes, straw bags, straw mats, and tobacco. The total tonnage deposited reached 9,639 tons, and the average tonnage per day was 1,617.8 tons. The storage fees amounted to *Yen* 4,652 and miscellaneous receipts to *Yen* 127, reaching the total of *Yen* 4,779, being *Yen* 0.011,5 per ton per day. Dock warrants, bills of deposit, and advices issued reached 1,306, of which 30 per cent. were issued to Koreans.

Results of Locomotive Working

The mileage of locomotives on all the lines during the year was 4,160,118.5 miles and the converted mileage of cars was 28,064,309 3 miles, while the coal consumed for running amounted to 185,761,845 kin and the oil (for cylinder, machine and air pump) to 90,289.47 sho. These show increases of 19.3 per cent. in locomotive mileage, 21.4 per cent. in car mileage, 3.7 per cent. in coal, and 17.1 per cent. in oil, when compared with the preceding year.

The following are the results of locomotive working on the different lines:

Line	Locomotive Mileage	Converted Car Mileage	Coal Consumed for Running	Oil Consumed for Running
			kin	*sho*
Kei-Fu	1,979,259.8	12,968,043.9	93,821,825	44,493.42
Kei-Gi	1,703,742.4	12,783,155.5	73,047.770	36,838.80
Kei-Gen	149,631.1	830,497.6	7,024,150	3,015.50
Konan	327,485.2	1,482,612,3	11,868,100	5,941.75
Total	4,160,118.5	28,064,309.2	185,761.845	90,289.47

Rolling stock at the end of the year included 154 locomotives, 268 carriages, and 1,538 wagons, being increases of 16 locomotives, 59 carriages, and 93 wagons.

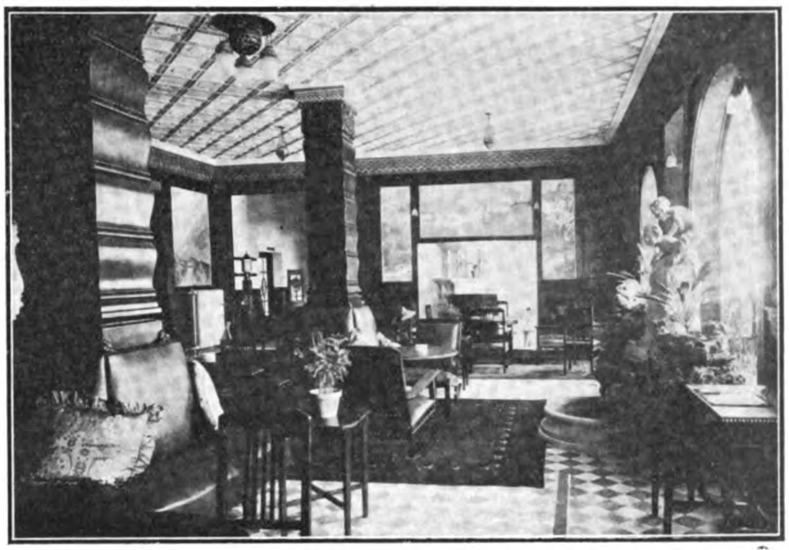
Workshops in the year numbered three, namely, Soryo and Heijyo Workshops; the number of artisans and workmen at the end of the year was 1,676; their aggregate working days in the year reached 496,120 and the total amount of wages *Yen* 378.021. The average number of artisans and workmen employed per day was 1,517.2, their wages amounting to *Yen* 1,156.03, the average wage per man per day being *Yen* 0.762.

Principal items of building and repair were the building of one private car, six 1st and 2nd class composite sleeping cars, six 2nd & 3rd class composite coaches, twenty 3rd class cars, eight baggage, mail and brakevans, sixteen baggage and brake-vans, fifty-three covered wagons, and forty open wagons, and the repairing of 165 locomotives (22 being trifling repairs), 489 carriages, and 1,147 wagons. In erection work, sixteen locomotives newly bought, two private cars, and thirty-three spans of girders may be mentioned. Conversions made were 10 covered wagons into goods and brake-vans, while new equipments made were steam-brakes to 2 locomotives, electric lights to 3 carriages, w. c. and vestibules to 4 carriages, air train pipes to 81 coal cars, 33 open wagons, and steam train pipes to 15 covered wagons, besides changing the couplers of 9 wagons, and the windows and other arrangements fitted to 12 covered wagons for military use. Three locomotives, five carriages, and 26 wagons were taken to pieces and packed for conveyance to Mokuho and Gensan, and again set up at these places.

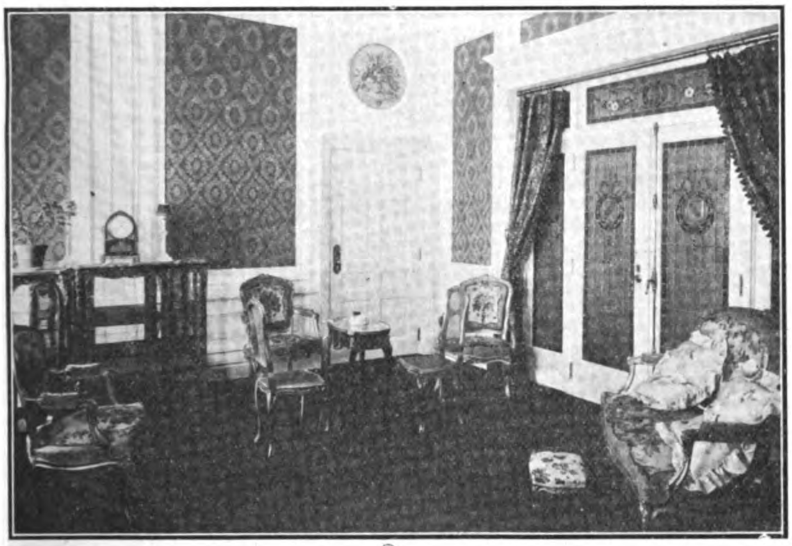
New arrangements at Soryo Workshops were the equipment of a core oven of large type in place of a temporary one, and the improving of a tyre-filling apparatus; the generating and accumulating apparatus for batteries in carriages was completed during the year. The motive power in use at the end of the year was supplied by four sets of steam engines (170 h-p.).

Interior Views of the New Chosen Hotel in Seoul

Lobby and Main Stairway



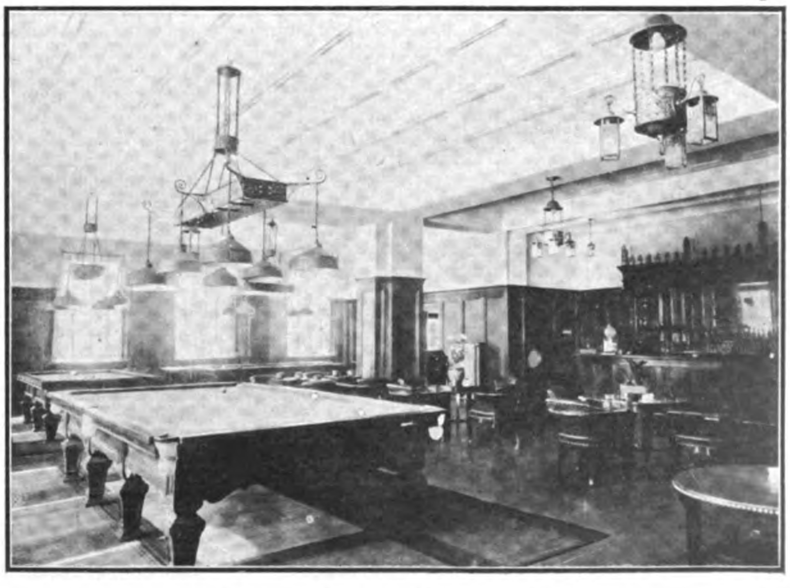
Lounge and Reception Room



State Bedroom with Tapestry Hangings

One of the 88 Bedrooms with Attached Baths

Dining Room at Night—Tables set for Banquet



Corner of Billiard Room and Bar

At Ryuzan Workshops, on completion of air compressor station newly built, 3 sets of boilers and 2 sets of compressors were erected and set to work; in the erecting shop, a set of goliath cranes was fixed up. The motive power at the end of the year was supplied by 2 sets of dynamos of 224 k.w. (one kept for emergency), 15 sets of motors (649 h.p. in all), and 2 sets of air compressors of 106 h.p. (one kept for emergency).

The motive power at Heijyo Workshops at the end of the year was supplied by a set of steam engines of 150 h.p.

Electrical Communication

Telegraph stations at end of the year numbered 144; of the number 83 are public telegraph stations, being increases of 15 in the formei and 9 in the latter over the preceding year in consequence of the opening of new lines. Eighty-two of the number are installed with both telegraph and telephone apparatus, and 62 with telephone apparatus only.

Telegraphic messages handled numbered 3,950,187 during the year, showing an increase of 4,421. Those dealt with per station per day were 70 railway telegrams and 9 public ones, showing decreases of 6 in the former and 4 in the latter compared with the preceding year.

The percentage of different messages was 28.3 per cent. despatched, 37.6 per cent. received, and 34.1 per cent. transmitted, showing an increase of 0.8 per cent. in those received and decreases of 0.1 per cent. in those despatched and 0.7 per cent. in those transmitted.

Circuits at the end of the year numbered 676, showing an increase of 64 over the preceding year. Circuits may be classified into 28 telegraphic circuits, 482 telephone circuits, and 166 signal circuits, being increases of 2 telegraphic, 39 telephone, and 23 signal circuits. The circuits for both telegraph and telephone adopting simultaneous telegraphy and telephony numbered 21, being 6 telegraph, 12 telephone and 3 signal circuits, being an increase of four over the preceding year in consequence of new lines being opened to traffic.

Machines at the end of the year comprised 137 telegraphic apparatus, 134 telephone apparatus, 267 block apparatus, 9 telephone switch boards, 53 electric bells, 16 repeaters, and 2 each of automatic indicators and release locks, showing increases of 15 in telegraphic apparatus, 57 in telephone apparatus, 32 in block apparatus, 8 in electric bells, 2 in repeaters, and 2 in release locks over the preceding year.

New offices for public telegrams opened during the year are Mokpo and 8 other stations. The delivery of messages arriving at Shoteiri and 4 other places was discontinued in consequence of an increase in telegraphic arrangements by the Communications Bureau along the railway line. For through communication between Mokpo Post Office and Mokpo Railway Station, and Kunsan Post Office and Kunsan Railway Station, one telegraphic apparatus belonging to the Communications Bureau was installed at these railway stations.

The revenue from public telegrams during the year amounted to *Yen* 8,249.61 and the average revenue per station, *Yen* 99.393, being increases of *Yen* 3.009.26 in the former and *Yen* 52.754 in the latter over the preceding year.

The following are the principal items to be mentioned concerning the electrical arrangements and their results during the year.

Power stations at the end of the year numbered 2, steam engines 3 (830 in total h.p.), and generators 3 (466 k. w. in capacity); one steam engine and one generator are kept in reserve.

Motors at the Ryuzan Workshops numbered 15 and their total h.p. amounts to 649.

The electric lights supplied by the Railway Bureau's own power station numbered 4,294, representing 3,666 when converted to 16 candle power, and those under contract 2,037, representing 2,394 when converted to 16 c. p. These show increases of 13.5 per cent. in the former and 16.4 per cent. in the latter compared with the preceding year.

130 carriages were equipped with 1,975 electric lights, and 130 with motor fans, their motors being 59 and batteries 1,416 in number respectively. These when compared with the preceding year show increases of 40 in the number of carriages, 710 in lights, 69 in motor fans, 18 in generators, and 432 in batteries.

The total amount of current generated during the year reached 1,184,068 k.w.h. (3,244 k. w. h. average per day), while the total expenditure was *Yen* 29,317.85 and the coal consumed 5,214,563 *kin*, corresponding to *Yen* 0.025 in expenditure and 4.4 *kin* of coal consumed k. w. h. The expenditure consisted of 59.2 per cent. for fuel, 4.6 per cent. for oil and grease, 12.2 per cent. for repairs made, and 24 per cent. for miscellaneous purposes. The average cost of coal per 10,000 *kin* was *Yen* 33.31. These figures represent increases of 0.1 per cent. in current generated, 16.1 per cent. in expenditure, 23 per cent. in coal consumed, 19 per cent. in expenditure per k. w. h., 22.3 per cent. in coal consumed per k. w. h., and a decrease of *Yen* 3.366 in average cost of coal per 10,000 *kin*.

Kei-Fu Line Construction and Improvements

The construction of a new shunting line at Nandaimon Station which had been begun the previous year was finished. The double track between Ryuzan and Roryorshin was also finished during the year.

In improvement work, the body, embankment, pier (Nos. 4, 5, 9) and girder works of bridge No. 2 over the Kan, as well as rebuilding bridge No. 2 on line No. 1 over the same river, which had been in the course of construction since the previous year, were completed: on the Masan branch, the filling work of the road-bed of Shinei-Rakutoko section (16 m. 50 ch. 17 m. 33 ch. from Masan terminus) was finished during the year.

2. Kei-Gi Line

On this line, the building of a temporary station at Mochuri, alteration to Hakuba Station, removal of the auxiliary building of the railway school at Ryuzan, and the removal of official houses at Kosui and Seikei, which had been in progress since the previous year, were finished during the year. The rebuilding of the main building of Shin-anshu Station, the building of an official house at Koyu, dormitory at Shingishu, the compressed air station and patients' room attached to the railway hospital at Ryuzan, the branch line on the Seisenko, and branch for transporting gravel on the Hakusen were all finished during the year.

As regards the Hei-Nan branch, the landing depot at Chinnampo which had been in course of construction since the previous year was finished; the enlarging of every station is still being carried on. The alteration in grade of a part of Heijyo-Taihei section, the construction of a new flood opening No. 3 for the R. Futsu, pitch stone work on the embankment of the Heinan Road (2 m. 30 ch. from Heijyo), and sewer work at 17 different points on the same road were all finished.

3. Kei-Gen Line

This being a new line, 138.4 miles long, between Ryuzan and Gensan, the construction of it has made conspicuous progress since its commencement in October, 1910, and the Ryuzan-Kenfutsuro section (86.5 m.) and the Gensan-Kozan section (28.1 m.) are open to traffic. In the direction of Ryuzan the only remaining work is the ballasting, and in the direction of Gensan almost all the earth, bridge, and tunnel works were finished, and the erection of girders and laying of rails are now in progress. The following are general remarks on the work.

Ryuzan-Sempo section (94.1 m.): Of this section the distance between Ryuzan and Tetsugen (60.8 m.) was opened to traffic in the previous year; 16 m. between Tetsugen and Fukkei were opened in July, 1913, and 9.7 m. between Fukkei and Kenfutsuro in September: the earth, bridge, and tunnel works, and the laying of rails for 7.6 m. from Kenfutsuro to Sempo were finished during the year and ballasting is now in progress.

The formation level of portions of the track at a distance of 1 m. and 9 m. from Ryuzan is now in hand.

Sempo-Kozan section (16.2 m.): This section runs along steep mountain sides and consequently has 14 tunnels (aggregating 11,149 ft.) and 35 bridges (aggregating 5,618 ft.), and is considered the hardest part of the work on the line. But the construction made conspicuous progress during the year, and 96 per cent. of the earth work, 88 per cent. of the bridge work, 93 per cent. of the tunnelling, and 94 per cent. of the work as a whole were finished during the year.

Kozan-Gensan section (28.1 m.): The construction of this section was begun in the fiscal year 1911, and 24.1 m. from Ryuchiin to Gensan was finished in August, 1913, and 4 m. from Ryuchiin to Kozan in October, and opened to traffic.

Accompanying the progress of the earth and other works, the rails were laid and construction trains run as far as Sempo, 94.1 m. from Ryuzan.

Building Works: The station main building and official houses at Gesseiri and Heiko, the station main building, official houses, locomotive shed, and dormitory at Fukkei, and the official houses at Taikori, the construction of which had all been started during the previous year, were finished in the year reviewed. The erection of storehouses at Rensen and Tetsugen, and the station main building and official houses at Kenfutsuro were all finished, while the temporary storehouse at Heiko was transferred to Fukkei and erected as a doctor's office. The station main building, official houses and dormitory were built at Koran; official houses at Shakuoji, and the official houses and dormitory at Ampen were finished, while the erection of the station main building and the enlarging of a dormitory at Gensan were done during the year.

Electric Line Works: The laying of the telegraph line between Giseifu and Tetsugen which was started the previous year was finished: a block line was built on the Seiryori-Giseifu section, and the temporary poles between Giseifu and Rensen were replaced by new ones, while a telegraphic line was erected along the Sempo-Kozan section and a tablet line on the Kozan-Gensan section.

4. Konan Line

This is a new line (161.3 miles) running from Taiden to Mokuho with a branch line to Kunsan of 14.8 miles. The work made great progress from its commencement in October, 1910, and the Taiden-Seiyu section (81.9 m.) and the Kunsan branch (14.8 m.) were opened to traffic during the previous year. The Mokuho-Kakkyo section (21.9 m.) was opened to traffic in May, 1913; the Kakkyo-Rashu section (13.3 m.), in September, the Rashu-Shoteiri section (8.7 m.) in October, and the remaining work was finished in January, 1914, thus opening the whole of the line to traffic.

As the construction of this line was carried on hurriedly, most of the bridges and culverts were of wood; the earth work, too, at stations was insufficient, and we had overflows at different stations in flood-time. Consequently, the line demanded reconstruction at many places, and the parts most urgently calling for it were taken in hand during the previous year. But in the year under review we took up all the reconstruction work. The following are general remarks on the work:

Kasuiin-Tokei section: The reconstruction for 2.3 miles of the approach to bridge No. 2 over the R. Kasuiin, which was begun the previous year, was completed.

The reconstruction of 8.7 miles of track (starting 0. m. 27 ch. from Taiden) was taken up in February, 1914, and 64 per cent. of the earth work and 27 per cent. of the bridge work were done during the year.

ELECTRICITY IN CHINA

[BY MR. T. H. U. ALDRIDGE IN CASSIER'S ENGINEERING MONTHLY]

The Shanghai Municipal system has been evolved to no little extent upon the lines of the Chinese Customs Service rather than on British municipal lines. The Electricity Department has for some years now outgrown the system, and is in fact, though not in name, a complete business concern supplying on an extensive scale a public commodity dreamt of when the Shanghai Municipal Administration was co-ordinated.

The Shanghai development of electricity in the form of telephones, electric trams, light, heat and power is all tending towards a higher grade and in place of a large coolie population an artisan class will spring up.

Already in Shanghai electricity is being used very extensively for driving machinery, for industrial purposes, such as cotton mills, rice mills, flour mills, printing works and many other industries too numerous to mention. From the extent to which it is now being employed in Shanghai it is reasonable to assume that it is more economical than steam or other forms of power, but beyond this there is the undoubted improvement following electrification of mills and factories, since the elimination of steam boilers reduces smoke and consequently the amount of dirt and gloom which is always associated with industrial cities. Therefore, it is a just claim to put forward that electricity contributes to no little extent towards improved conditions of public health.

Chinese Electrical Undertakings

While on the subject of urban electricity supply, it may not be out of place to offer a little advice regarding the development of this kind of work in Chinese cities. I know there are many difficulties, not only in creating schemes for lighting Chinese towns, but in obtaining the best advice relative to the schemes themselves and the technical details involved. I am afraid an enormous amount of money has already been wasted in many Chinese electrical undertakings simply because there has been no guiding hand to point out which schemes may be suitable and which may not. As things are, it is usual for those getting up or forming a scheme for electricity supply in a Chinese town to ask for tenders from various foreign manufacturing representatives.

Very often a scheme is asked for which will provide so many thousand lamps, a term in itself extremely vague. This being done, the next procedure is for the manufacturers' representative to obtain information upon which to base a complete scheme. I think I am right in saying that very often these schemes are submitted without first-hand or even reliable second-hand knowledge of the conditions obtaining; they are, furthermore, not infrequently handled by foreigners possessing no qualifications whatever for the particular class of work.

From the somewhat scanty information available the schemes are submitted to the manufacturers at home, who, in turn, work out estimates and forward tenders to China for the particular scheme in question. Most of these manufacturers are fully qualified and competent to elaborate excellent schemes, but the conditions under which they are called upon to tender make it almost impossible for the best results to be obtained.

Manufacturer Not at Fault

A particular manufacturer may have an excellent scheme to propose, but knows perfectly well that it may be far more costly initially than that of his competitors, and, although he would be able to convince those qualified to understand the soundness and advantages of his proposals, yet he has no such opportunity, because in most cases there is no such person or body to whom the scheme can be submitted. Therefore, he puts in a tender which will give more or less satisfactory results, but probably one which he knows is not the best. This is only natural, and no one can blame the manufacturer for so doing; the fault lies with those calling for tenders, that is, those who are responsible for originating the scheme. They themselves rarely know even in a very vague way, what they want; it is only the trained engineer, conversant with the planning and laying out of electric supply undertakings, who can really draw up a comprehensive scheme.

Cases in Point

I know of some instances where lighting stations have been built in wrong parts of the town, away from water which is required for condensing purposes, and inconvenient for the easy transport of coal, where obviously wrong systems have been adopted. In one case in particular I call to mind where the power station was built a long way from the river and on a hill, the very worst place imaginable. The reason given for this was that if the station were built a long way from the river coal would have to be transported some distance and so require a large number of coolies to handle it, therefore somebody would be able to make a lot of money over the coal transportation. Owing to the station being away from the river it would be impossible to run the plant as economically as if it were built close to it, and here again the element of personal greed came in because it meant the conditions under which the plant would have to operate would be such that 25 per cent. more coal would be required than otherwise; thus, the man supplying the coal would make large profits whilst the undertaking itself would be more or less crippled from the outset.

Advice Necessary

I think what is badly needed is the employment of consulting or advisory engineers to advise the different Chinese authorities on the question of electricity supply in their cities. These engineers should have no interest in any manufacturing firms—they should be men of high integrity and men who would command implicit trust. They must not be figure heads and their advice should be followed.

If the drawing up of the schemes were placed in the hands of such engineers, not only would the Chinese stand to benefit by having suitable schemes drawn up for them, but the manufacturers would also be in a position to quote for better machinery than they do under the existing conditions, because they all would have a definite plan to tender to and know that the lowest tender would not necessarily be accepted, but the one which, all things considered, would be essentially the best and give the best results in operation.

Good Material Available

There is excellent material in China to work upon and my experience shows that under proper direction the Chinese can be trained to perform responsible work, and I believe there is a very great future industrially and in the engineering field for China; but the country must recognize that this result cannot be obtained without a long apprenticeship being served and that for a long time help must, as far as I can see, come from the foreigner who has generations of training behind him.

Other countries have also benefited from the influx of foreign blood, and I cannot but think that if China would less grudgingly open out the country and allow the foreigner to help to build up the industries and open up the mineral wealth, the great Chinese nation would forge ahead to an extent comparable with other progressive countries.

ROSPHALTIC, IRON PROTECTOR

How best to prevent the corrosion of iron or steel is a matter uppermost in the minds of all Engineers and others responsible for the erection and up keep of structures made of these metals. A material which will satisfactorily prevent rust and corrosion, which can easily be applied and which is economical in use is all that can be desired, and with the object of manufacturing such an article, Messrs. Owen Bros. of Hull, England, devoted several years to the serious study of corrosion, its cause and prevention. The result has been "Rosphaltic" the iron protector.

"Rosphaltic" is bitumen in perfect solution, a scientific advancement over mechanical mixture of bitumen and solvent. This does away with all sedimentary material in suspension, which must produce an imperfect film, and thus result eventually in corrosion; a common fault with all solutions which require stirring. The covering power of "Rosphaltic" is great: one hundredweight will cover 4,500 square feet with two coats. This averages out at three times the area covered by the best oil paints. The great economy secured by this is obvious. "Rosphaltic" is damp proof, a property not possessed by oil paint. The possession of this property together with that of expanding and contracting with the metal, renders it a most effective protector of iron and steel when these metals are exposed to the most severe climatic conditions.

United States Steel Products Co. in new Quarters.

Among the many Shanghai agencies that have been forced by the increase of their business to seek larger quarters, is the United States Steel Products Company, which has removed from 24A Kiangse Road to the New Union Buildings at the corner of Canton Road and the Bund. Here the United States Steel Products Company has secured commodious quarters, from which offices its entire China business will be handled and where its manager, Mr. J.W. Gallagher, who has returned to his desk after a severe illness, will be glad to welcome the many friends and business associates of the company. The removal took place on the 1st. of February.

LARGE ELECTRICALLY DRIVEN MINE PUMP.

The El Oro Mining & Railway Company, of El Oro, Mexico, has installed what is said to be the largest motor-driven pump equipments over built for unwatering a mine. The pump, which was built by the Goulds Manufacturing Company, Seneca Falls, N. Y., has a capacity of 500 gal. per minute. The construction is such that the pump can be readily dismantled and lowered down an ordinary mine shaft, and when assembled it requires a very little head room. The pump is installed in the bottom of the mine and works against a head of 1,300 ft. The driving motor is a 200-H.P., three-phase, 50 cycle, 440 volt, 485-R. P. M. Westinghouse machine, connected with double reduction gearing giving the crank shaft of the pump a speed of 35 R. P. M.

TRADE OF TSINAN AND TSINGTAU FOR THE YEAR 1914

[By H. B. M. Consul J. T. Pratt].

General remarks.—It is not possible to write a trade report for Tsinan in the usual form for 1914 as no figures of any sort are available even for the port of Tsingtau. The first half of 1914 opened auspiciously. There were good spring rains resulting in an excellent wheat crop. Exports were growing in volume and importers with local representatives pushing the sale of cigarettes, oil and soap all found that their business was rapidly expanding.

Bright prospects. Outbreak of war.—At the beginning of the year the Germans had successfully negotiated agreements for the construction of two new railways which would have greatly increased the importance of Tsinan as a centre of railway communications. They had also at length found the capital for working an iron mine—said to be very rich in ore—situated near the Tsinan-Tsingtau Railway. Everything seemed to indicate that Shantung was about to enter on an era of prosperity and rapid development, but all these hopes were destroyed by the unexpected outbreak of the European war. The railway to Tsingtau—the main artery for the trade of Shantung—immediately ceased to be available for the transport of merchandise.

Floods.—At the same time disastrous floods occurred in the east of the province, a very large portion of which area was at the same time occupied by Japanese troops who were spread over the countryside in small detachments. The net result may be summed up in a single sentence. Trade became stagnant over the whole province and in the districts east of Tsinan ceased altogether. This stagnation continued till the end of the year, after which, as conditions gradually became more settled, a slight revival took place.

Tientsin-Pukow Railway.—In the meantime, however, the Tientsin-Pukow Railway has had an excellent opportunity of becoming the main artery for the trade of the province. Reasonable facilities at Pukow and more rolling-stock are all that is required, but unfortunately the Chinese are not adepts at managing railways to the best advantage. Some attempt has, however, been made to encourage traffic by the institution of cheap through rates.

Exports.—The principal exports from the Tsinan district are cotton, groundnuts, hides, tallow and cattle. The only foreign firms with local representation interested in exports are Germans who regarded Tsinan as the hinterland of Tsingtau and therefore specially worth developing. Their business has now, however, practically entirely ceased.

German losses.—It is well known that German merchants will take great risks, but it is frequently forgotten that those risks often lead to heavy losses. That has certainly been the case in Tsinan, where the German merchants have needlessly increased the amount of their losses by foolish efforts to impress the Chinese with a sense of their grandeur. For many years the German exporter in Tsinan, occupying palatial premises, has made little or no profit for his firm, while the Britisher, living in very humble quarters, has spread over the province organisations for the distribution of certain imports from which a golden harvest has been reaped. The German exporter has for practical purposes already disappeared from Shantung. It is probable that his place will be taken to a large extent by the even more ubiquitous Japanese, but there is little prospect that any British merchant will find conditions sufficiently attractive to induce him to open a branch here.

Banking.—The only foreign bank in Tsinan is the Deutsch-Asiatische Bank, but it is said that it has never made enough profit to pay for the imposing building in which it is housed. On the outbreak of war the manager—a Prussian Officer of the reserve—adopted a policy of "frightfulness" towards his British clients, with the result that the bank lost its business more rapidly than might otherwise have been the case. Its sole resource now is funds of the Salt Gabelle, and the branch is run at a heavy loss. Most of the foreign firms now bank with the Bank of Communications and the Bank of China—both purely Chinese institutions—which seem to answer all requirements. There is no likelihood that any British bank will find it worth while to establish a branch here.

Imports.—The principal imports into this district are cigarettes, oil, soap, sewing machines, cotton thread, dyes, piece-goods, matches and medicines. The distribution of cigarettes, oil, soap, sewing machines and medicines is in the hands of, or superintended by, foreigners, with eminently satisfactory results.

Petroleum companies agencies.—A German firm was formerly agent for the Standard Oil Company, with the result that the Asiatic Petroleum Company, with their own staff and organisation, succeeded in capturing most of the Shantung market. This agency has now been terminated and the Standard Oil Company with their own staff will compete much more keenly in future.

Sewing cotton.—Most of the cotton thread in Shantung comes from Japan, and there is no doubt that the British manufacturer would obtain far better results if he dispensed with German agents and established an organisation of his own.

Dyes.—Aniline dyes were imported from Germany but the trade has now completely stopped and there seems some likelihood of a revival of the cultivation of native indigo.

Medicines.—Medicines are imported mostly from Japan, and their flaming advertisements are to be seen everywhere. Certain British patent medicines which have their own foreign salesmen also find a ready sale among the Chinese.

Cigarettes.—The advent of the Japanese is likely to cause keen competition in the cigarette business, which, however, the British American Tobacco Company are very well equipped to meet.

Tsingtau

Mr. Vice-Consul Eckford reports as follows:—

Exports. Straw braid.—The first six months of the year were disappointing to shippers and manufacturers owing to the fashions in the home markets not favouring Chinese braids, thus causing but a comparatively small demand in this market. About midsummer, however, there were signs of a revival of the China business and a number of forward contracts were made for shipment in the early autumn. Had the war not intervened it is safe to say that the latter end of 1914 would have seen a considerable increase in shipments. As it was, the trade in straw plaits became quite demoralised and all forward contracts were cancelled.

Groundnuts.—In the first five months of this year there was the usual volume of business through this port, but exports to Europe were probably less than last year owing to a largely increased domestic demand for the south which kept prices often above European limits.

The new season's (October to May) crop is very inferior, owing principally to damage from heavy floods and partly to the nuts being left too long in the ground in the districts adjacent to the recent military operations. Both quantity and quality have suffered from these causes. The restriction of markets in Europe, the largely increased rates of freight and the inferiority of the crop have all tended to the reduction of exports. The usual moderate demand from America, furthermore, has not been met this season as the superior quality required by that market has not been obtainable. No supplies have come to this port at all, the farmers preferring to send their productions to Shanghai and Tientsin. Also, the native buyers from the south, who usually come to Tsingtau for their supplies, are this season operating in Tsinanfu, Taianfu and Shanghai, taking their purchases by the Tsinpu Railway to the Yangtse for shipment to Hong-Kong and Canton. Owing to the decreased demand and the increased rates of freight the farmers are able to get only very low prices for their output this season.

Cow-hides.—The latter half of the 1914 season (January to May, 1914) was not marked by any change. More hides passed through Tsingtau than in any former season. Owing to the siege there was nothing done in 1914 season hides until December, when they reached the highest price ever known in Tsingtau, going up as high as 60 taels. This was entirely owing to Japan having secured a large contract for leather for the Russians. Japanese merchants paid any price the dealer liked to ask, much speculation was done, and many small firms had to close down. Up to the end of the year the quantity of hides arriving here was of necessity small.

MINING EXPLOSIVES AND THE WAR

The embargoes which have been placed upon the exportation of explosives from the Allied Countries have greatly increased the demand on the United States from foreign countries. Since these embargoes also restrict the exportation of glycerine to the United States, there has been an abnormal increase in the cost of glycerine and the price of explosives has advanced very materially as a result. The immediate result of this state of affairs is that consumers everywhere are paying high prices for explosives. Therefore, the economic necessity of supplanting, wherever possible, explosives which contain very high percentages of nitroglycerin, such as blasting gelatin (which contains from 86% to 92% nitroglycerin), 80%, 70%, 60% and 50% nitroglycerin explosives with those containing say from 35% to 40% nitroglycerin, is becoming apparent to the users in all parts of the world.

In countries other than the United States a great deal more can be done towards making these economic changes than in the United States, because in the latter country consumers have for years been using the 40% grade as a standard for all ordinary work and in the United States it is well recognized that only exceptionally hard rock really requires stronger explosives, and that even for hard rock, 60% can generally be depended upon to do the work. In foreign countries, on the other hand, it has been customary to use the very high grades of explosives above mentioned. This is the result of custom; not of necessity or economy. There is little doubt but that the temporary hardships imposed by the high cost of explosives will result eventually in the adoption of lower grades, and that after the war, when the glycerine prices become normal, these lower grades of explosives will continue to be used and the resulting economy will in a year or two more than offset the temporary higher costs due to the glycerine situation. In other words, increased efficiency and a reduction in mining costs will probably have been brought about very much sooner through force of necessity than could have occurred under normal conditions.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

300 Cars for Peking Mukden Line.—The freight traffic of the Peking-Mukden Line has steadily increased, and the demand for rolling has been so great, due largely to the heavy traffic in coal between Tangshan and Tongho, that recommendations have been made for the addition of two hundred 30-ton coal cars, one hundred 30-ton covered-goods cars, and 12 locomotives. The first "all steel" 30-ton cars were used during 1914, and are now the standard of that type of car on this line. The tonnage capacity of freight cars of all classes was 62,554 in June, 1914, as compared with 59,711 in June, 1913; and there was an addition of eight locomotives during the year. The ratio of working expenses to earnings was 36 per cent for the year ended June 30, 1914, as compared with 27 per cent for the previous year; and the earnings for 1913-14 were $460,184 gold less than for 1912-13.

Taokou-Chinghua Earnings.—There was an increase of about 12 per cent in the amount of freight carried by the Taokou-Chinghua Line in 1914 over the previous year. The total receipts in 1914 were $247,381 gold, as compared with $228,388 gold for 1913. Coal forms by far the largest part of the freight carried by this road. Other commodities transported are timber, salt, kerosene oil, bamboo, ginger, tobacco, machinery, medicine, and grain.

Electric Tramway for Harbin.—It is reported that the directors of the Chinese Eastern Railway have awarded a concession to the Russian firm of Barski & Co., at Harbin, to construct an electric tramway between the Pristan and Old Harbin, via New Harbin, and with a branch line to Fuchiatien, the Chinese city. The total length of the line will be about 7 miles. A local newspaper stated that the construction of the tramway was to begin immediately.

S. M. Ry. and Russian Coaches.—With regard to the order for railway carriages by the Russian Government, which has been a subject of communication between Japan and Russia for sometime, the South Manchuria Railway Company has now accepted a contract for the supply of 1,509 carriages. It is proposed to enlarge the Company's factory at Dairen so that it may be enabled to turn out 300 carriages a month. The total cost of the order is estimated at Y.30,000,000. Most of the materials will have to be imported.

Szepingchieh Line Agreement. — The loan agreement between the Yokohama Specie Bank and the Chinese Government of $3,400,000, for the construction of the railway between Szepingchieh to Chiengchiatung, the length of which is 52 miles, is said to be based upon the Tientsin-Pukow line agreement according to Peking Press reports. The negotiations for the construction of the five railways in Manchuria and Mongolia, the privileges for which were given to the Japanese some time ago, have been carried on for some time and it is believed that a satisfactory arrangement is being arrived at between the two Governments.

According to Japanese reports, it was understood at the time of signing the Ssupingkai-Chengchiatun Railway agreement that the construction work shall be begun in June and completed in three years. Owing to the lateness of spring in the region along the proposed railway, it is usually well into July before the thawing process is completed. For this reason, the actual commencement of construction work is expected to be somewhat deferred. The process of the work should be rapid as the major portion of the proposed line traverses a level country.

The distance is about 52 miles. This route has been surveyed twice but a construction survey will have to be made taking about a month. The construction expense is expected to be less than Y60,000 per mile, on which basis the total outlay is about Y3,200,000. The heaviest outlay will be for the four bridges. The one over the Liao River will be about 2,000 feet long, and will cost between Y400,000 and Y500,000, which estimates are likely to be exceeded owing to the recent sharp rise in price of iron and steel.

Taonan-Urga Line.—The Living Buddha of Outer Mongolia is now a strong advocate for the construction of the long proposed line connecting Taonan in Fengtien and Urga in Outer Mongolia which has been delayed by lack of funds. The Living Buddha has suggested that if the Chinese Government determines to build the line, the Urga Government will be quite willing to supply half of the funds. The total cost of the line is said to have been estimated at $60,000,000.

Railway Construction in Chekiang.—The Railway makes but slow progress towards Shaohsing, says a correspondent of the N.-C. Daily News. Only a hundred men are at work on the line between Tsaongo and Shaohsing city and these have been concentrating on a cutting at Bahtayang, a place lying some twelve miles distant from here. No work has been done on the section between Shaohsing and the Chientang river; even the necessary land has not yet been acquired. The local papers reported that the line was going ahead this year with a Chinese engineer over the section Shaohsing—Tsaongo, an English engineer to be over the Shaohsing—Hangchow section. According to reports the city station site has been chosen outside the West Gate despite its inconvenience.

Shantung Railway.—In the course of a little over a year since the Shantung Railway passed into Japanese management, the traffic earnings of the Line, if coal freights are considered, have been raised somewhat above the figures under the German regime. For the last twelve months of the German regime the Line is said to have yielded Y13,000 per day, which represents the actual receipts of the Railway at present. There is no denying the increase of both imports and exports in Shantung and the annual receipts of the Railway may be put at about Y3,500,000. If the coal receipts are added, the total will reach about Y5,000,000.

The estimates of the Railway for the next fiscal year, both capital expenditure and working expenses combined, amount to about Y2,600,000, part of which sum will be employed for the improvement of the Line, construction of new locomotives, etc. Furthermore, the operation of Chinlingchen Iron Mine has been decided upon, and for this purpose about Y300,000 is separately asked for. This mine possesses 200,000,000 tons of ore. Working this when domestic demands for iron reach 1,000,000 tons, as against only about 300,000 tons put out, will make a great difference to Japan.

Chefoo-Weihsien Railway—The Peking Daily News states that the Government has granted the request submitted by the Chamber of Commerce in Chefoo for the joint construction of the line connecting Chefoo and Weihsien by the Government and merchants. This line will be semi-official in nature, and its estimated cost is $10,000,000. It has been decided that $6,000,000 of the sum will be borne by Chefoo and another $1,000,000 by the six hsiens along the proposed line, $2,000,000 by the province of Shantung, and the remainder will be financed by other provinces and the Central Government.

Road for Kueichow.—Kueiyang citizens were much elated over the news that sanction had been given for a provincial loan for Kueichow of $1,000,000 to be used in the construction of a big road for vehicular traffic from Kueiyang by way of Anshunfu to Paichengho, and for clearing the river from that place down through Kuangsi, so that it will be navigable for motor-boats. In the absence of railway communication in Kueichow the plan seems to be an excellent one.

New Chinese Lines.—It is reported that the Ministry of Communications has decided to construct several lines of railways during 1916. They will include lines from Kalgan to Shuiyuan 317 li; one from Lanchow in Kansu to Ili and from Sian in Shensi to Lanchow in Kansu, 500 li. With the exception of the line from Lanchow to Ili, these lines have been surveyed.

Double Track for Japan Line.—The Imperial Railway Bureau has completed the purchase of land along the railway track between Ofuna and Yokohama for the construction of a double track line. The work has been begun and is expected to be finished by the end of this year. After the completion of the work, the railway service between Tokyo and the naval port will be greatly improved.

Favor Broad Gauge for Japan.—The special committee in the Railway Board has completed an investigation into the question of whether on the railways the present narrow gauge shall be continued in use or broad guage tracks shall be adopted. The investigations were started, it is reported, during the presidency of the late Dr. Sengoku, and have just been completed. It is reported that members of the committee have discovered the continuation of the present narrow guage system is not advantageous, and that the other system should be adopted. Since such a change requires a great deal of money, it is a question whether the government will agree to any immediate change.

P. I. Government to Buy Manila Railroad.—The negotiations between the Insular Government and the Manila Railroad Company for the purchase of the latter have resulted in the departure of Mr. Fisher Nesmith, the

special representative of the holding interests of the Manila Railroad Company in the United States, for New York with a draft of a proposed agreement between the Government of the Philippine Islands and the road owners, signed by President H. S. Higgins of the Manila Railroad and the Governor-General, for the purchase of the lines by the Philippine Government. The papers carried by Mr. Nesmith are said not to bind either party but it is known that the personal views of the Governor-General on the subject are also the views of Mr. Osmena, Speaker of the Assembly, and of the Board of Public Utilities Commissioners. Although nothing definite has been stated concerning the sum the Government is willing to pay for the road, it has been learned that the price will not be far from 50,000,000 pesos.

Australian Tramway.—The local Council at Footscray (Victoria) is considering the question of a local electric tramway service, covering a distance of about six miles. The name of the consulting engineer may be obtained by United States manufacturers and contractors interested from the Department of Commerce and by British Manufacturers from the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall Street, London E.C.

There is a difference of opinion whether, if the holding interest in the States agree to sell at the proposed figure, it will be necessary for the Insular Government to secure Legislative ratification or whether it has authority to act independently. It is stated that the administration can purchase the railroad without going to the Legislature as funds are available in the gold standard fund and various sinking funds, which the chief executive is empowered to invest. Therefore he could take up the controlling interest in the railroad stock without going to the people but it is thought that the ratification of the Legislature will be asked.

Certain important matters with regard to existing stock and bond issues of the original and holding companies must be adjusted by the owners to meet the requirements of the Government. Other readjustments are necessary in connexion with the present liability of the Government for the payment of interest on construction bonds. But if the owners are willing to meet the Government requirements in this regard and at the same time to accept the offer tentatively made, there is every indication that the deal will be closed. A definite answer from New York is expected by about the end of February.

RIVERS AND HARBORS

West River Conservancy.—Mr. Tan Hsueh-heng, Director of the River Conservancy Work of Kwangtung, has submitted to the President a new map of the rivers of Kwangtung drawn up by the conservancy engineers. With this map as a basis, he has formed plans for the building of dykes at important places along Peikiang and Sikiang so as to prevent the recurrence of floods such as were experienced in Canton and other cities last summer. The funds for repairing and building the dykes will be contributed by the merchants of Kwangtung but the Conservancy Bureau will send engineers to make detailed plans and superintend the work.

Saigon to Improve Harbor.—Saigon, like other ports of French Indo-China, is nominally under the control of the central Department of Public Works, but by a decree of January 2, 1914, it was granted a certain degree of autonomy and a local administrative council. This Council of Administration, consisting of 12 members and assisted by the chief engineer of the Cochin China division of the Department of Public Works, has a separate budget and votes improvements and money subject to the veto of the governor of Cochin China. This council met for the first time August 7, 1914. The first task of the new council was to consider an extensive system of improvements for the harbor of Saigon, whose facilities are inadequate for the accommodation of its commerce. At a recent meeting the following programme was agreed upon, to be put into operation as soon as possible:

1. The construction, in common with the navy yard, of a drydock 300 meters (984 ft.) long, at a cost of about $1,600,000.

2. The installation of an electric towpath along the Canal of Derivation, from Saigon to Cholon (4 or 5 miles), at a cost of about $200,000.

3. The acquisition of a floating crane, at a cost of about $30,000.

4. The construction of docks for the mooring of small boats, at a cost of about $20,000.

5. The construction of warehouses and an inclosing wall for the customs along the quay of Khan-hoi. The estimated cost of this work is fixed at $30,000.

S.M.R. Co. Harbour Works Office.—Construction of Concrete Blocks. The manufacture of concrete blocks for the construction of the quay wall of the Third Wharf and the Northwest Breakwater will be resumed in April. Last year's output was 1,200,000 cubic feet consisting of about 1750 blocks weighing between 20 and 50 tons each. The monthy average number is 250 and odd.

Reconstruction of Singapore's Wharves.—The contractors, Messrs. Topham, Jones and Railton, Limited, of London, have made satisfactory progress during 1915 with this work notwithstanding some delay, necessitated by the design of the quay wall being altered owing to the nature of the ground and the quality of the material for filling behind it. As 1,900 feet of the main wharf is now out of use, it has been handed over to the contractors. Considerable delay is being incurred in obtaining the steel construction for the godowns to be erected on the reconstructed wharf.

In comparison with the the previous half year, the gross earnings of the wharf department show an increase of $97,258, the net earnings an increase of $45,336, and the tonnage an increase of 103,972 tons. The expenditure on repairs and renewals was $141,497.92, an increase of $60,310.60 on the preceding half year. Of the total interest paid or due to Government, viz., $956,958.73 for the half year under review, $595,679.08 was in respect of interest account, the capital cost of the undertaking, debentures and loans at call, redeemed, the balance of $361,279.65 being in respect of new works; the total of $956,958.73 being an increase of $19,950.60 over that of the previous half-year ($937,003,07).

New Pier for Zamboanga.—Construction work on the new concrete pier at the port of Zamboanga has been begun under the supervision of H. F. Cameron, the department engineer for Mindanao and Sulu. The project involves an expenditure of about P55,000, and will be of great benefit to the commercial development of the southern port.

We have been informed by the District Engineer that the plans for the dock extension are expected to arrive from the bureau of public works by the first mail from Manila, and that work will immediately be resumed and carried forward to completion without delay. The present delapidated and dangerous pier is to be replaced by a concrete structure and carried out to thirty feet of water. The pier head is to be 250 feet long which is ample for all vessels plying in these waters.

MINING

Mining Progress in New Guinea.—Previous to the outbreak of war the mining position in British New Guinea had reached an interesting point, where high values reported as a result of the small amount of lode mining seemed likely to insure its being tested on a scale proportionate to the values and wide occurrence of gold reported. The period antecedent to the war was, however, very unfavourable for raising capital, and since that date interest has turned towards evicting the Germans from the neighbouring half of New Guinea and preparing a hasty rummage of the new territory. Official statistics recently available show that the recorded output for the twelve months to the middle of 1914 declined somewhat, amounting to 14,666 crude ozs., compared with 18,247 crude ozs. in the corresponding earlier twelve months.

The Kulumadau mine continues the only producer of importance, and returned for the year 3,696 crude ozs. from 13,175 tons crushed. The property is described by the Warden of the field as a very valuable one, but needing larger capital than it possesses. The figures for some of the small shows are spectacular, but, of course, the scale of working prevents any certainty as to their real value. The Woodlark King returned just on 1,600 crude ozs. from 372 tons of ore crushed. The Federation mine at Busai showed a value of over £1,100 from a little over 200 tons of ore, and gives promise of being most valuable.

Another property in the same field, the Murua United, has opened up a lode which is said to assay about 6 ozs. to the ton. The efforts of the owners of these and adjoining properties have been mainly directed to seeking capital, and in most cases they are restricted to working with one or two white men and perhaps twenty natives. The bulk of the gold won is still alluvial, and an increasing interest in dredging is to be observed.

On the Yodda a dredging plant has been sent out, but as it has to be transported over 70 miles of track, progress is necessarily slow. Dredging areas are also understood to exist on Mambare, Gira, and Lakekamu rivers. Twenty-one dredging claims have been taken out, and others applied for. Despite the failure of the Great Fitzroy or Mount Morgan to realise their option on the Laloki mine, development has continued, and a considerable amount of "payable ore" has been blocked out—payable, we must presume, under improved conditions of transport, as at present the exports are confined to between 20 and 40 per cent. copper ore, while the average grade of the Laloki has been reported at 3 per cent. All transport at present is by mule or, in the dry seasons, by waggon.

Quite a number of claims have been applied for, the most promising after the Laloki being the Dubuna and Astrolabe. The amount of copper ore shipped last year was 1,150 tons, valued at £19,733. In the Murua field, on Woodlark Island, the presence of copper country over a large area is undoubted; in the event of mines being developed the nearness of deep water would insure cheap working. On the Astrolabe field little can be done without railway construction, but with that a production of 60,000 tons of ore annually is estimated for.

The country, however, is one which cannot possibly develop itself. So far production has been almost entirely alluvial by individual prospectors, and capital on a considerable scale is now required to test the lode formations. The total white population at the end of June last year was only 1,186, of whom 159 were miners, while the natives so employed numbered no more than 1,015.

Mining Output of Malaysia.—The present year, from a Federated Malay States mining standpoint, opened with the price of tin standing at $69.50; there was a

gradual rise, with fluctuations to $86.00 on the 19th of March, during which month the average price was about $81.58; in May it dropped to $79.75; in June it was $81.71; and since then the market has shown a downward tendency. The average price for the whole period was $79.23 per pikul as against $80.86 for the first half of last year. The drop in price as compared with 1913, the last normal year, has been accompanied by an increase in the cost of placing tin on the London market and the working of a few properties has been effected; but the circumstances of the industry as a whole, under war conditions, may be said to be satisfactory.

The output for the first half of the year, reduced to a metallic basis, was 391,738 piculs, being 26,607 piculs less than for the similar term in 1914, but approximately the same as that for the first half of 1912. The decrease in the value of tin exported amounted to $3,278,208.

Tungsten Exports of Malaysia.—War requirements have led to an abnormal increase in the demand for tungsten ores for use in the manufacture of high speed steel and various forms of hardened steel, and the price in the United Kingdom has risen to fifty-five shillings per unit of tungstic acid, at which price it is being requisitioned by His Majesty's Government. The export of tungsten to places other than the United Kingdom and the Straits Settlements is prohibited. With a view to encouraging an increase in the Federated Malay States' production, the export duty on wolfram has been temporarily suspended and other attempts are being made to ascertain if other measures can be taken to effect any considerable increase in production.

The railway connection to the Malayan Collieries, Limited, is practically completed, the opening up and equipment of the mine is in an advanced stage, and before the end of the year a steady output of coal may be expected. Further trials of the coal from this Colliery have demonstrated its suitability for a variety of uses, and it is understood that experiments in briquetting are being undertaken.

The Raub Mine continues to be a steady producer of gold, and maintained its normal output.

Metal Markets of 1915-1916.—The following annual report on the metal market of the United Kingdom for 1915 and the outlook for 1916 has been furnished by Messrs. William Jacks and Co. of London and Birmingham.

The fluctuations in prices during the past twelve months will in themselves make the year 1915 a memorable one in the Metal Trade. Looking back we can see the effects of the formation of a standing Army of some four million men, a Navy with one million, and the remaining available labour of the country mainly engaged in producing Munitions of War, combined with the great and growing scarcity of shipping, brought about by the duplicating at various points on the map of our initial Expeditionary Force, and the consequent enormous rise in freights. In ordinary times trade demands contract as prices rise, and practically vanish as the advance is carried beyond a certain level, but all past experience counts for nothing under present conditions. The War profits which have accrued to our American friends have led to a sharp revival in the Home demand there which has gone far to accelerate the upward tendency that has prevailed throughout the entire year.

Iron.—Cleveland prices sagged early in the year on the general slackness prevailing in the Foundry Trade and stocks increased, but the rising freights made importations of American Iron impossible, and with the rise of 50s. per ton in Hematite and similar advances in Coal and Coke it was impossible for Cleveland Iron not to follow.

Copper has had wide fluctuations, due no doubt partly to American manipulation of the Warrant market, to assist them in marketing their increasing output of Electrolytic at two to three times its cost of production. With the Russian demand absorbing the bulk of the Japanese output as well as a considerable portion of the Australian output, their task has been an easy and profitable one.

Tin has only been affected indirectly by the War, and the fluctuations have been chiefly caused by the giving and withholding of Export Licenses by the Government. The fact that no Homeward Bound Tin has been sent to the bottom during the year must be a source of great satisfaction to Consumers and Underwriters—if not to Speculators.

Lead has moved both ways like Copper, depending largely upon the Russian demand earlier in the year, and later on the rapid rise in Atlantic freights, which, of course, is reflected in Lead to a much greater degree than in Copper or Spelter.

Spelter rose £87 in the first six months of the year, principally on the fact that all Sheets used in the Camps throughout the country were supplied galvanised. By the time a suitable substitute for Spelter was discovered by the Government in Bituminous Paint the price of Spelter fell £60, but later on firmed again on the increasing demand for Munitions.

1916. For the New Year it is impossible to predict, as everything depends upon the duration of the War. As we write, freights have advanced further, and as the new recruits are called up costs of all raw material produced in this country are bound to increase.

Iron is more affected than other Metals by this question of labour, but with a falling off in general demand and increasing difficulties in the way of rail and shipping facilities, consumption seems to us to have reached its maximum.

Copper.—The Transatlantic freight contracts at 17s. 6d. per ton are a thing of the past, and freights are now three to four times that figure. The block at New York and the scarcity of shipping facilities are likely to prevent any serious set-back in prices of Electrolytic Copper, and stocks of Standard Copper are small and easily manipulated.

Tin.—There seems no reason to look for important fluctuations in this metal, as supply and demand seem evenly balanced, and the Government have taken steps to insist that stocks in this country are kept at a reasonable level. This metal is also less affected by Peace prospects than any of the others.

Lead.—It seems to be doubtful whether the position in Mexico has really improved or not, but any prospect of more settled conditions there would appear to us to make Lead at £30 seem on a high basis.

Spelter.—It is to be hoped that producers in this country will be able gradually to increase their production in conjunction with our Australian friends and so make us independent of outside supplies, but this will take time, and under present conditions it does not seem probable that America will allow the position to ease.

Government to Supervise Mining.—Hitherto the antimony mines of Kuangsi have operated by private individuals under special permission of the Government. It is now decided, says the "Peking Gazette," that the mines are to be operated under the supervision of the Government and a sum of $200,000 has been set aside in connexion with this purpose.

New Coal Fields in Manchuria.—New coal fields are reported to have been discovered near Station Manchuli by the local chief of police. The fields are located about 5 miles from the Station Manchuli and 2 miles from the railway line. The discoverer has offered to sell his right in the deposits to the Chinese Eastern Railway which is investigating the amount and quality of the coal.

Japan's Lead Imports.—The demand for lead in Japan is about 20,000 tons a year, and the supply from home mines is only about 3,000 tons, or 15 per cent. of the amount demanded. Since the outbreak of war, the only source from which Japan has been able to obtain a supply was Australia, but it is reported that a strike in the mines there is expected to curtail the output by half. The demand for lead this year is greater because of the manufacturing of munitions of war for Russia. The supply of ores contracted for or in the course of arrangement for the year are as follows:

	tons	from
For Kamioka mine	5,000	Australia
,, ...	1,500	China
,, ...	3,000	Asiatic Russia
For Osaka Zinc Refinery	7,000	Australia
Refinery in negotiation..	10,000	,,
Available for other refineries	5,000	,,
Total..................	29,500	

The ore, when refined, is reduced by about half and the above ores will produce nearly 15,000 tons of lead. The home output of 3,000 tons, added to this, would make 18,000 tons in all, available for consumption for the present year. The average demand being 20,000 tons a year, and 4,000 tons being in demand for munition manufacturing, the total demand this year will amount to 24,000 tons. Supposing it is possible to curtail the consumption for regular purposes still there will be a shortage of supply of lead of about 5,000 or 6,000 tons. This has caused the market to harden, the present quotation being 25 yen for immediate delivery, and 23 yen for time bargains.

Japanese Steel Works to Expand.—At a recent general meeting of the shareholders of the Sumitomo Steel Works of Osaka it was unanimously decided to change the company into a joint stock company, with capital of 6,000,000 yen. The Sumitomo Steel works now has representatives traveling in the United States and England to buy up-to-date machinery to be installed in its works. As soon as the new equipment is installed, production on a larger scale will be started and an additional increase of capital, which the company proposes to open to the general public, will be announced. Baron Sumitomo is president of the company.

Chinese Work Russian Mines.—In view of the special conditions created by the war, the Goldmining Committee of the Ministry of Trade and Industry has declared in favour of provisionally suspending the regulation forbidding the employment of Chinese labour in the mines of East Siberia and the adoption of measures to facilitate the transport of Chinese workmen to the gold diggings.

S. M. Ry. Plans Steel Works.—It is again reported that the South Manchuria Railway Company plans to start a steel plant, using material from the mines along the zone of the railway. Mr. Kabayama, a director of the company, who is coming to Tokyo from Dairen is reported to be commissioned to get consent of the authorities there.

Indian Output of Coal.—India is now producing more coal than all British Dependencies, but Japan has got well ahead of her with an output of 21 million tons and is actively competing in the markets of Ceylon, the Straits Settlements, Sumatra and Java. India must naturally remain a practically non exporting country until the countries around become better developed industrially; under present conditions she consumes within her own borders 93.9 per cent of her production.

The railways of the country alone took about $4\frac{3}{4}$ million tons of Indian coal, supplemented by nearly 300,000 tons of foreign coal; and their total consumption at the beginning of the quinquennium was only $3\frac{3}{4}$ million tons, we have here an index of expansion in railway traffic in this short period. In 1913, the total quantity of foreign coal received in India amounted to 645,000 tons, the sources of supply being, in order of volume, the United Kingdom, Natal, Japan, Australia; some other countries also contributed to a total extent of 175,000 tons. Total exports for 1913 amounted to about 760,000 tons, out of which 426,000 tons went to Ceylon and 198,000 tons to the Straits Settlements.

Market for Graphite.—In view of recent discoveries of graphite in China, the following from India may prove of interest. Before the war a large quantity of the plumbago exported went to the continental ports, Germany being the biggest buyer. With the outbreak, the trade was more or less at a standstill as the export of the article was prohibited except to England and the allied countries; but England not being a large buyer, the prices fetched were very low. Later the Government sanctioned the export of the article to America and prices improved a great deal. Since of late not America only has been a big buyer, but also England and Russia, the latter country up to October 31 having taking 39.961 cwt. against 79 cwt. in 1914. The greater demand is from the American market which has imported up to that date 186,599 cwt. against 136,562 last year, while the United Kingdom has imported 86,952 cwt. against 84,000 in 1914. The price fetched is about R1,000 per ton and denotes a much sounder state of affairs than even during the extraordinary boom in 1890 when the price went up to R1,100 per ton. There is an excellent demand for all grades and both the large and small producers are being benefited. Most of the small pits that had been closed have been reopened and certain restrictions that were imposed by government in consequence of the recent riots are being relaxed. All the plumbago to Russia goes via Vladivostock.

SHIPPING

New Line for Manila Run.—According to reports from Manila, the Philippines and San Francisco are to be brought within twenty-two days of each other by a line of direct freight and passenger vessels. This is the outgrowth of the purchase of the remaining seven steamers of the Pacific Mail Company by the American International Corporation of New York. The new line will start with five steamers, leaving San Francisco every three weeks and making the trip to Manila in twenty-two days.

New Nippon Yusen Kaisha Steamer.—The N.Y.K. S.S. Tokiwa Maru, which was successfully launched on the 9th instant at the Mitsubishi Shipbuilding Yard, Nagasaki, where she had been built, is intended for a cargo-boat for the Company's European service. Her keel was laid on May 5, 1915, and she is expected to be completely equipped about the middle of next May. Her general descriptions follow: Length (over all) 445 feet: Breadth (moulded) 58 feet: Depth 34 feet: Gross tonnage 7,252; Speed 14 knots: I. H. P. 5,800; Carrying capacity 12,000. She has four cylindrical single-ended boilers, a through double bottom, seven watertight bulkheads, two through decks, five holds, and fourteen winches and derricks, and is 100 A.1, as required by Lloyds. A unique feature of her engine is her Parson Turbine of the Impulse Reaction System.

Japan Building Submarines.—According to Japanese press report the Kawasaki Dockyards have obtained all the rights and privileges to build all future engines and machinery for torpedo boats and submarines of the F. I. A. T. type, if they so desire in Japan. All the plans and details are to be furnished them.

A further contract has been signed which gives the Company the exclusive rights to manufacture in Japan the Fiat type of Diesel oil engines. These engines are applicable not only to submarines, but are now proving successful and economical factors as marine engines even in larger vessels. For the construction of the hull of the first submarine and for instructions as to operating, several Italian engineers will go to Japan. The Kawasaki Dockyards Company will send a number of technical experts to study in the Fiat works in Turin and in Spezia. The Dockyards has entered into a contract with the Fiat San Giorgio Company of Turin for the construction of one latest model submarine of the Laurente type. This boat displaces 700 tons when on the surface and 1,070 tons when submerged. In speed it is as fast as any modern battleship and can travel over 6,000 miles without replenishing its supply of oil. The length is 75 metres. It carries five torpedo tubes, three in the bow and two in the stern, besides anti-aircraft submersible guns and other up-to-date appliances. The hull of this submarine will be built in Japan. The machinery and engines, &c. are to be built and sent from Italy. The vessel will be completed within 24 months.

New Japanese Dockyard.—Plans are being made to establish a dockyard off Tsurumi, Tachibana-gun, Kanagawa prefecture, by Mr. Asano, president of the Toyo Kisen Kaisha, Mr. Yasuda, president of the Yasuda Bank, and a number of other business men of Tokio, with a capital of 5,000,000 yen. Mr. Asano and others obtained permission from the Government to reclaim ground for the purpose some time ago. When the dockyard is ready Mr. Asano expects to build five passenger liners, each similar to the liner Hongkong Maru which the Toyo Kisen Kaisha sold to the Osaka Shosen Kaisha some time ago. After the completion of these steamers another passenger boat with a displacement of 25,000 tons will be constructed. All these steamers will be placed on the Toyo Kisen Kaisha San Francisco-Hongkong Line. All materials, which are to be used in the new dockyard for the construction of these steamers, will be procured in Japan as far as possible.

China Mail Names Agents.—Mr. G. J. Petrocelli has been appointed agent in Shanghai of the newly formed China Mail S.S. Co. and assumed his new duties on January 1. He has no advices as yet as to the company's plans except that it will make Shanghai a regular port of call.

P. I. Cable Ship Sold.—Application has been made by the Tabacalera Steamship company to the public utilities commission for authority to issue capital stock of a par value of P375,000 to the Compania General de Tabacos de Filipinas in part payment for the cableship Rizal. The consideration for the transfer by the government to this corporation of the Rizal, consisting of the sum of P210,000 in cash and the transfer of the steamer Bustamante, has been paid by the Compania General de Tabacos de Filipinas.

Dollar Buys New Steamer.—Robert Dollar, head of the Dollar Steamship Co., has announced that his company has purchased the British steamer *Strathardle* from Burrell and Sons, Glasgow, and will bring the vessel out here to operate between Vancouver and the Orient. The *Strathardle* is of 2,829 tons net, built at Dumbarton in 1910.

C. P. R. Resumes Steamer Service.—The Canadian Pacific Steamship line has announced that the Empress of Russia would leave Hongkong for Vancouver, via Japan ports, on February 24, followed by the Empress of Asia on March 23, and that a steamer of the company would leave Hongkong every four weeks thereafter. This puts the complete oriental service of the company back in operation. The matter of calling at Manila has not yet been definitely settled.

TRAMWAYS

The Japanese tramways date back from 1880, when in February an application was tendered for the construction of the Tokyo Horse Tram Co.'s line. The application was sanctioned, and the line was completed and opened for traffic in June, 1883. This was soon followed by others in rapid succession, and especially since 1888 every year witnessed application for four or five horse tramway undertakings. The result was the promulgation of the Tramway Regulations by Law No. 71 on August 23rd, 1891, by virtue of which horse tramways and similar means of transportation to be lain on public roads for general traffic came to be authorised subject to the special sanction of the Minister of Home Affairs. On October 22, 1908, it was further provided by Imperial Ordinance No. 266 that applicants for the construction of tramways on the Tramway Orders should also obtain the sanction of the Minister of Communications, whereupon the control of the tramways as to their construction and working came under the charge of the Imperial Government Railways. The following are the results of working during the year:—

Item		Electric tramways	Steam engine tramways	Petroleum motor tramway	Horse tramways	*Rikisha* tramways	Total
No. of tramways		55	23	1	35	12	126
Mileage...	Open	565.28	203.34	29.51	269.72	70.64	1,138.49
	Under construction	262.11	66.95	9.84	19.46	1.41	359.77
Capital (*yen*)		249,297,380	5,170,000	1,000,000	2,163,060	601,500	258,231,940
Cost of Construction (*yen*) ...		242,007,716	5,042,808	1,121,536	2,288,212	650,522	251,110,794
Rolling Stock ...	Locomotives	3	116	55	1	—	175
	Carriages ...	3,506	196	30	535	96	4,363
	Wagons ...	184	251	105	587	430	1,557
Staff		20,610	1,003	247	1,374	625	23,859
Passengers carried	No.	558,431,796	6,384,694	1,907,730	9,212,380	293,174	576,229,774
	Earnings (*yen*) ...	22,454,673	698,820	142,797	631,844	29,080	23,957,214
Goods hauled	Tonnage	420,017	205,694	47,269	229,829	285,460	1,188,269
	Earnings (*yen*)	239,759	119,617	37,996	190,885	157,144	745,401
Revenue (*yen*)		31,061,976	1,085,414	195,197	887,340	350,511	33,580,438
Expenses (*yen*)		21,635,020	808,684	127,029	788,608	298,604	23,657,945
Profit (*yen*)		9,426,956	276,730	68,168	98,732	51,907	9,922,493

TRAMWAYS NOT YET OPENED FOR BUSINESS

Item	Electric tramways	Steam engine tramways	Petroleum motor tramway	Horse tramways	*Rikisha* tramways	Total
No. of tramways...	26	9	—	16	8	59
Mileage of Lines sanctioned ...	247.47	50.51	—	110.21	26.69	434.88

THE FAR EASTERN REVIEW

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THE SOUTH GRAND CANAL CONSERVANCY SCHEME

[REPORT BY MR. H. VAN DER VEEN, CONSULTING ENGINEER TO THE NATIONAL CONSERVANCY BUREAU]

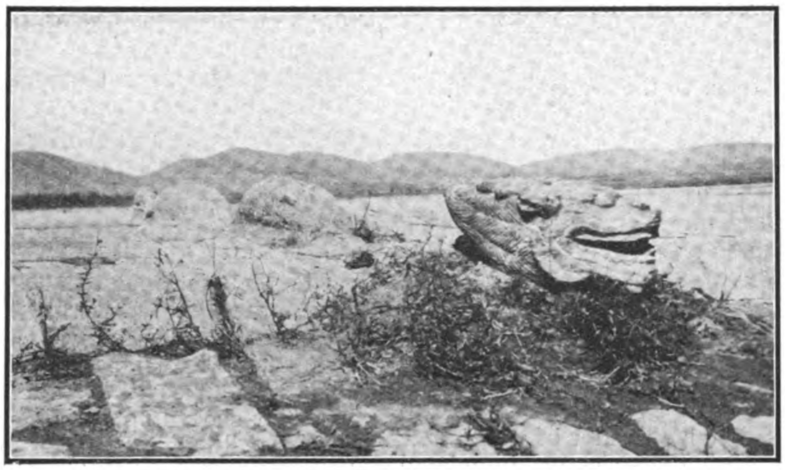
This conservancy work, of which a plan has been drawn up by the South Grand Canal Conservancy Bureau, under the able directorship of Mr. F. Pan, comprises the improvement of the South Grand Canal in Shantung, south of the Hwang-Ho, (Yellow River) as well as the conservancy of the Ta Ching Ho, Wen Ho and Sze Ho, which finding their rise in the Western Hills of Shantung, have as their only outlet the Grand Canal, with the exception of the Ta Ching Ho, which partly empties into the Yellow River.

As these rivers are all mountain rivers subject to sudden rises, and as they have moreover no sufficient outlet at present, inundations are bound to occur, causing year after year not only enormous losses, but also turning large areas of the country which under normal circumstances would have been fertile land, into permanent swamps.

Historical Review

Before the Grand Canal was made the various rivers which drain the Western mountains had, with the exception of the Ta Ching Ho, no outlet to the sea at all, but formed large lakes in the low country at the foot of the hills. It was by connecting those lakes, such as the Wei Shan Hu, Chao Yang Hu and Tu Shan Hu, that the canal was most probably formed. Further north the canal is for the greater part artificial, so also may be the part south of the Wei Shan Lake. The total length of the Grand Canal from where it enters Shantung in the South to where it meets at present the Yellow River is 279.20 kilometres. To overcome the difference in elevation, not less than 33 locks had to be built, the highest section being between Kai Ho Chun and Yuang Ko. In order to feed different sections of the canal enormous engineering works had to be made, one of the most important being the Tai Tsun Ba (or weir) in the bed of the Ta-Ching Ho, whereby during the low water season all the water is forced to follow the Wen Ho.

In my opinion this river from the dam to the Grand Canal is artificial and only made to feed the higher sections of the Canal. Not far from Wen Shang Hsien another dam is built, the Ho Chia Ba, whence two channels lead to other sections.

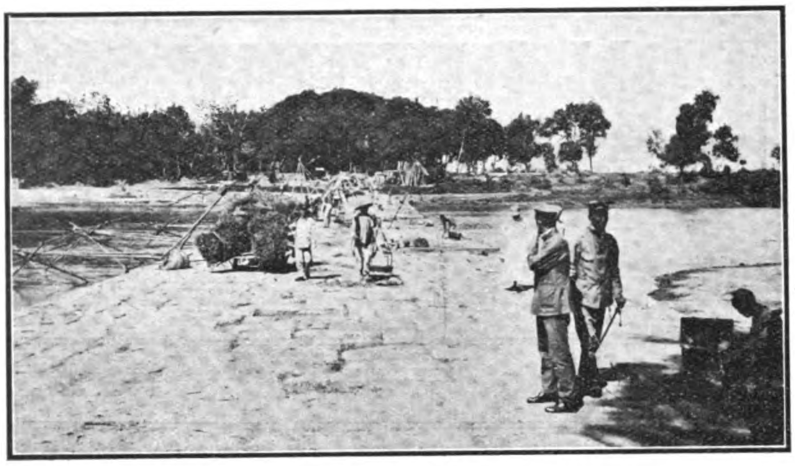


THE NGO-YU—"FISH THAT FIGHTS THE WATER"—ON A WEIR

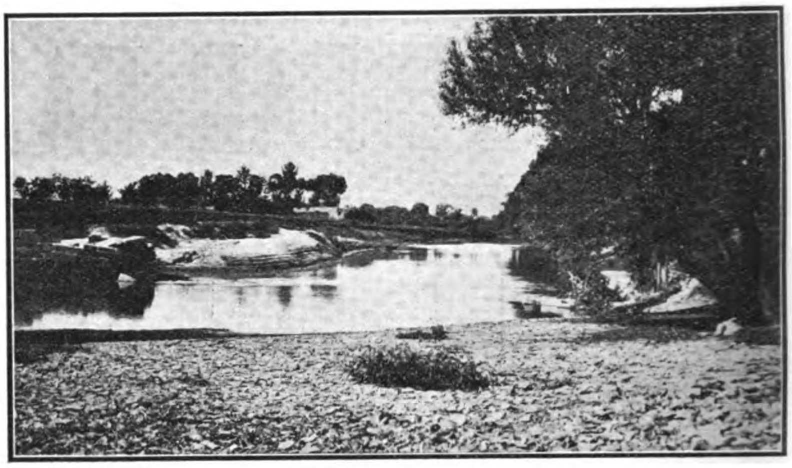
The Tai Tsun Ba was necessary to prevent the water from the Wen Ho following the Ta Ching Ho, which at the time the Canal was made had its own free bed to the Gulf of Pechili. Another important work is the Kin Ko Ba, near Yen Chow, or Tze Yang Hsien, in the Sze Ho, in order to raise the water-level to a certain height so that a part of the water could be used to feed the Grand Canal near Hsi Ning Hsien. For this purpose the Fu Ho was dug also with a lock at the entrance, the He Feng Ko. The Kwang Ho, branching off from the Wen Ho, was probably another feeding canal, but as it proved insufficient, it was abandoned and the Kin Ko Ba works, including the Fu Ho, were made. In order to supply the Grand Canal with water during the dry season the Mata Hu, Su Shan Hu, Nan Wang Hu and Ma Chang Hu were used as storage basins and supplied with locks to regulate the amount of water. Most of the works are still in very good condition and bear proof of the high engineering capacity of olden times, of which the Chinese nation has every reason to be very proud. It was a gigantic undertaking for those times, about five centuries ago, when so little about engineering was known, and high respect is therefore due to those who were able to bring the work to such a good end.

During ages the canal has been in good condition, although it must naturally have suffered much by the deposits of the rivers which used it as an outlet to the sea, which they did not have before. There is no doubt that in this respect the canal was also an improvement on the drainage of the country. That much excavating had to be done to keep the fairway deep enough is clearly shown by the enormous dykes or mud deposits, almost hills, which are seen at several places along the banks of the canal.

This satisfactory state of affairs lasted until in 1851 the Hwang Ho broke through its North Dyke, not far from Kai Feng Fu, and flooded the low lying country in the South West of Shantung Province, looking for another outlet towards the sea which it found by usurping the bed of the Ta-Ching Ho and which it has kept up to the present moment. This put an end



KIN KO PA NEAR YEN-CHOW, ACROSS THE SZE-HO



PART OF WEIR AT CHANG-CHIA-CHIAO

to the usefulness of the Grand Canal, which, specially in those sections nearest to the Yellow River, got filled up with deposits to such an extent that navigation was henceforth rendered impossible. The connection with the Yellow River was re-established by digging a new channel, the Po Ho, which connects the Grand Canal near a village called An Chan Chun with the lower Ta-Ching Ho.

Already on former occasions during temporary escapades of the Hwang Ho (Yellow River) had this region to suffer and it is said that some 200 years ago the entire area was flooded, of which the swamps West of the Yen Ho still bear proof, but never was the harm so thoroughly done as in 1851. Not only was the Grand Canal rendered useless, but the Ta-Ching Ho lost its own free outlet to the sea, which is the cause of yearly repeated serious inundations.

Some Causes of the Present Unfavourable Conditions

As said already in the preceeding the Ta-Ching Ho lost its own outlet towards the sea since the Hwang Ho took its place. The consequence is that the former river depends entirely upon the latter, that is to say, if the water-level in the Yellow River is high the Ta Ching Ho cannot get rid of its water, and as the time for freshets in this river very often coincides with the time that the Yellow River is swollen, only very little water can escape along the old course and has to follow another way. Consequently the Wen Ho has to bring down more water. This causes again a rise in the Grand Canal which affects the discharge of the Sze Ho. In case freshets should happen to take place simultaneously in the Wen Ho and the Sze Ho, dyke-breaks, and consequently inundations, are bound to occur. But even without dyke-breaks in the Wen Ho, Yen Ho or the Sze Ho the result is already bad enough, for on account of the water of the Ta-Ching Ho not being able to escape quickly enough, hindered by the high water of the Yellow River, large areas such as the Tung Ping District, get inundated and remain practically in that condition during the entire rainy season, so that cultivation of the land is out of the question. Probably the bad effect would not have reached the present extent if the large storage basins such as the Ma Ta Hu (lake), Nan Wang Hu and Ma Chang Hu, together covering about 120 square kilometers, still existed, and if moreover the connection between Nan Wang Hu and Chao Yang Hu had been in good condition. But as it is, these lakes do not now exist as they have been silted up and are now cultivated land, and the Niu To river has been silted up also.

Thus the only thing the Wen Ho can do is to fill the Su Shan Hu and send the rest of its waters through the Grand Canal. This channel is, however, entirely incapable of conveying large quantities of water and consequently the water in Wen Ho and Ta Ching Ho will rise until the unavoidable dyke-breaks take place.

The South Grand Canal, Conservancy Bureau's Scheme of Improvement

In rough outlines the plan, which is divided into three sections, is as follows:—

The first section deals only with the improvement of the Ta-Ching Ho. This improvement is to be carried out by building dykes on both sides of the stream from Tung Ping Hsien down to the Yellow River so as to prevent the water from flooding the Tung Ping District.

The second section deals with the improvement of the Wen Ho, Sze Ho and Grand Canal, and in connection herewith, the reclaiming of the swamps.

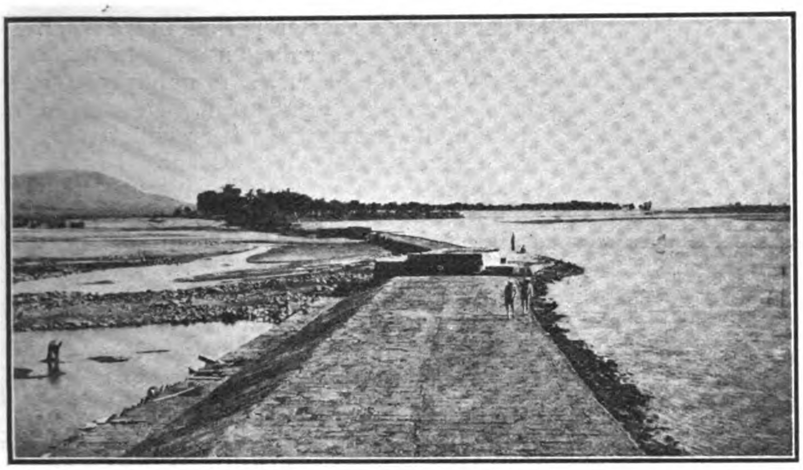
These improvements are thought to be attainable as regards the Wen River by increasing the outlet, that is, by digging out the silted up canals in the Nan Wang Lake so as to establish a new connection through the Niu To Ho with the Nan Yang, Chao Yang and Wei Shan Lakes. The Sze River is to be improved by rectifying and enlarging the Toung Sze Ho so as to be able to conduct more water towards the Tu Shan Lake. The Grand Canal will be improved merely by dredging the shallow parts.

According to the plan the costs could be entirely defrayed by the revenue of a tax of $1.00 per mow of reclaimed land, amounting to $826,000 for the first year. This is for Tsi Ning District 300,000, for Tungping district 326,000,—and for Yu Tai District about 200,000 mow.

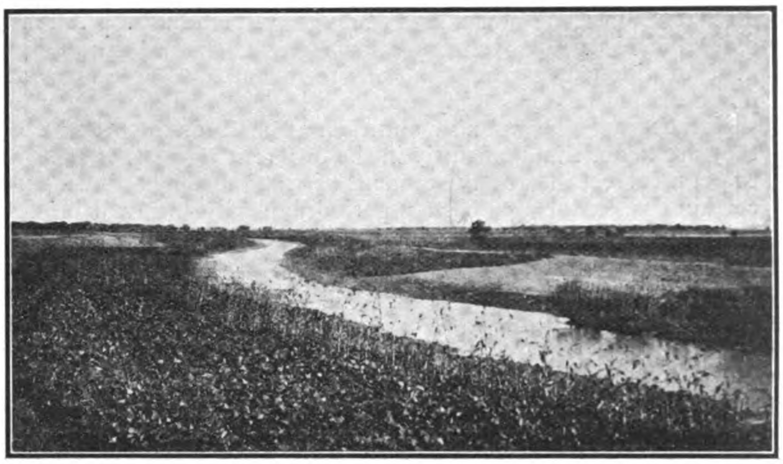
Feasibility of the Scheme

In order to be able to judge better whether the contemplated scheme is feasible or not, it is necessary first to go more into the details of the reasons which are the cause of the present unsatisfactory state of affairs. As already said, one of the main causes lies in the fact that the Ta-Ching Ho lost its own free outlet because the Yellow River took its bed. Now the bad effect this river has on the discharge of the Ta Ching Ho would never have taken such proportions if the Hwang Ho did not bring down so much silt, but as it is, the mouth of the Ta Ching Ho gets absolutely choked up during every rise in that powerful river and therefore although the water may drop all of a sudden the discharge capacity of the Ta Ching Ho is but slightly increased. The reason of this is that the Ta-Ching Ho first has to make a new channel but as this channel making without human assistance is but a very slow process during which dangerous rapids are formed, it very often occurs that before the barrier has been removed altogether a new rise in the Yellow River builds it up again. This is a most serious question and in my opinion everything should be done to remove this evil if possible, for if the Ta-Ching Ho, as soon as the water in the Yellow River falls, could regain its full capacity, inundations as happen now in Tung Ping District, even if the other conditions remained unaltered, would never reach the extent they have now. It is therefore most necessary to study carefully this question, of which at present no data are as yet available.

Owing to the incapacity of the Ta-Ching Ho the Wen Ho has to bring down the bulk of the water, thereby raising the water in the Grand Canal, which waterway has only a very limited capacity. It is obvious that to improve the conditions this Canal must be relieved and the solution suggested by the South Grand Canal Conservancy Bureau to make a connection through the Nin To Ho with the Chao Yang Hu and Wei Shan Hu is therefore a very good one.



The Tai-tsun weir



Remains of Grand Canal between Yellow River and OnHon Chun. (this part is silted up)

The necessity of relieving the canal becomes the more urgent as further South near Liu Chiao the waters of the Sze Ho have to be received also. This river is of a similar nature as the Wen Ho, that is, subject to sudden freshets. Near Chiang Chia Chiao the Sze Ho splits into two branches, one the Toung Sze Ho leading towards the Fu Shan Hu, and the other the Hsi Sze Ho towards the Grand Canal. The Tu Shan Hu is a storage basin which is through eighteen openings connected with the Canal, which is again connected on the opposite side with the Chao Yang Hu. As however the Toung Sze Ho is considerably silted up, the immediate effect of the storage basin is not felt during a freshet and consequently the greater part of the water runs down the Hsi Sze Ho towards the Grand Canal. Very often this waterway is already in a high stage owing to the water from the Wen Ho, but even if that should not be the case the waterlevel would quickly rise only by the amount of water coming down the Sze Ho and consequently the water-level in that river will rise, too often resulting in serious dyke-breaks. It is evident that also in this case an improvement of the discharge of the water would solve the problem, which the South Grand Canal Conservancy Bureau thinks, and in my opinion rightly, to be able to find by improving the Toung Sze Ho.

It is now the question to ascertain whether the necessary increase of the discharge of the waterways in question can be obtained by the proposed scheme or not.

In short, the proposed scheme comprises the improvement of the Ta-Ching Ho, Wen Ho, Niu To Ho and Sze Ho (Toung and Hsi Sze Ho).

Would an improvement of the above mentioned waterways solve the question?

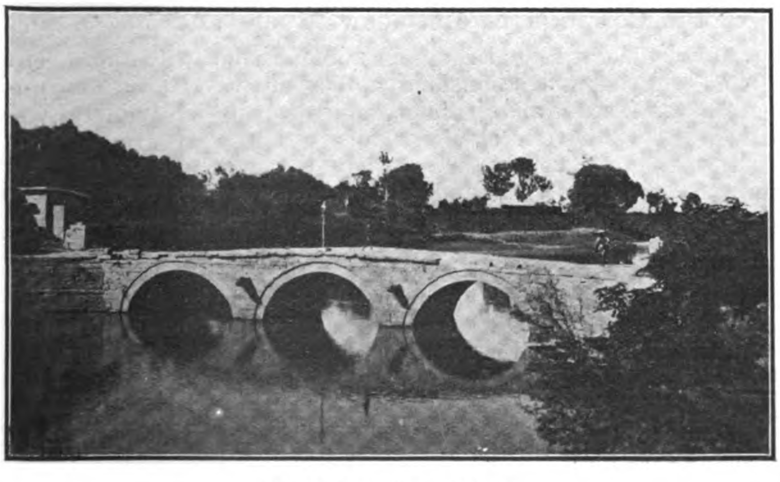
The answer to this question is that the suggested improvements solve the problem if at the same time the storage capacity of the various lakes combined with the discharge capacity of the Ta-Ching Ho and the Grand Canal below the Wei Shan Lake are sufficient to cope in such a way with the amount of water brought down by the various rivers that the water-level in those rivers does not rise any more to a height which may cause dyke-breaks and consequently inundations, and moreover that the water-level in the storage basin does not get raised to a height whereby drainage of the low lying country is impossible.

What has to be determined first, therefore, is the amount of water which may be expected and secondly what is the storage capacity of the lakes and what the capacity of the outlet (Grand Canal).

In view of the sudden rises in these mountain rivers the storage capacity of the lakes is the most important, as their outlet is small and only able to deal with the accumulated water over a long period. In time of freshets everything depends, therefore, upon a quick discharge towards the storage basin and the capacity thereof, whereas the final outlet only plays a secondary role unless the freshets should last very long, in which case it is possible that the water-level in the storage basins gets raised too high so that it interferes with the proper drainage of the country. Now the Grand Canal is an outlet with only a very limited capacity, specially during the summer, on account of the enormous quantity of water it receives lower down from the Ye Ho. It is, therefore, very desirable that the condition of the Grand Canal below Wei Shan Lake be seen to as well, and that section of the Grand Canal would benefit enormously if the Ye River would have its own outlet to the sea.

In order to collect the necessary data, the South Grand Canal surveying Bureau was established, which commenced its task early last year. Although much work, and very good work, has already been done, it is not entirely finished yet, and it is therefore not possible to form a definite opinion just now, on the feasibility of the scheme. For this the most elaborate data are necessary. Moreover the entire survey of the country must be finished first if possible with contour lines, but as this cannot be done, owing to shortness of funds, only the low lying land could be levelled and cross sections taken of the lakes and swamps.

The work was expected to be finished by the end of the year but besides the survey more is necessary to make a plan, as f.i.



Bridge over Sze-ho River

Travelling by wheelbarrow in Shantung

discharge measurements and tide-gauge readings. Already several discharge measurements have been taken and records are kept of tide-gauge readings along the rivers, but these measurements should be done daily during the whole summer, or rainy season at least, and not now and then as has been the practise. If they are taken simultaneously in the different rivers it is possible to get a correct idea of the amount of water brought down on a certain day or during a certain period, but with the available data this cannot be ascertained. It would be infinitely better even if two summers could be spent in collecting the data, for rainfall is very irregular, and the more data obtained the nearer we get to a fair average, and on this the calculations have to be based. In order to be able to take simultaneous discharge measurements a larger staff is of course required, as each gauging station wants its own men, but it is not necessary to have in one river several places where the discharge is measured. For each river one gauging station is sufficient. For instance one station in the Wen Ho above Tai Tsun Ba and one in the Sze Ho above Kin Ko Ba would be enough to learn the amount of water brought down, and if one gauging station were established in the Grand Canal at Han Chwang we would be able to determine exactly how much water is being stored up in the lakes.

There are also kept records of the rainfall but this has been done only in one place, which is not sufficient. Records of rainfall although they have no immediate value in connection with the drawing up of a plan are later on very useful to determine the percentage of the rainfall which is brought down by the rivers, but in that case several rain-gauges should be established all over the catching basin of which careful records should be kept during a period of at least 10 years.

When the surface of the storage basins and the height of the water-level therein are known (this is after the preliminary work is finished), it can be figured out how much this level will rise during freshets in the rivers, and knowing the outlet of the lake we can also figure out how long it will take to lower the water again to its ordinary level. This is necessary in order to determine whether the at present continually inundated low country and swamps are able to drain off on the lake. In other words, whether reclamation is possible or not. As it is the idea to defray the costs of the improvement out of the sale of, and taxes on, the reclaimed land, this is most important.

I will endeavour to give, based on data already collected, an illustration of how a calculation has to be made. However, it has to be borne in mind that as the calculation is based on data which are entirely insufficient as yet, the result is only to be accepted under very much reserve, although, as will be seen, it is of sufficient value to prove that the contemplated scheme is worth going into more carefully. I mean to say that it is worth while to spend more money on a proper study of the project.

According to the map used the Su Shan Hu has a surface of 45 square kilometers, the Ta Shan Hu 204 sq. K.M., the Chao Yang Hu 142 sq. K.M., the Wei Shan Hu 408 K.M. and if we take it for granted that of the swamp through which the Niu To Ho runs 73 sq. K.M. can be reclaimed, there remains 100 sq. K.M. which may be considered as storage basin, so that the total surface of the above mentioned lakes amounts to roughly 900 sq. K.M. or 900,000,000 square meters. By a rise of the water-level of 1 m. the amount of stored up water is consequently 900,000,000 cubic meters, and if the level should rise 2 meters it would mean that 1,800,000,000 cub. m. of water had been flowing into the lake so that the amount of water which had been disposed of would have been considerably more as we did not take the water into consideration, which would have drained off through the lake at Hanchwang. This is an enormous quantity.

Now supposing that the Wen Ho and Sze Ho are in flood at the same moment. Let us take the highest discharges which were recorded up to the middle of August of last year, that is for the Wen Ho and Sze Ho each 130 M^3 per sec. or together 260 M^3. Let us further suppose that the Pei Ma Ho and other minor rivers brought down 40 M^3 then is the total amount of water brought down per second 300 cub. M. or 1,080,000 cub. M. per hour or 25,920,000 c.m. per day. This means that if during 35 days in succession the above mentioned amount of water had been brought down the water level in the lakes would only have risen 1,00 m.

It is quite probable that during a shorter period more than the above mentioned amount of water per day has been brought down, however, even if this should occur, it is unlikely that average will amount to more than what I presumed. Besides, I did not take into consideration the amount of water which may have run off through the Ta Ching Ho or Grand Canal. I think, therefore, that the above calculation is on the safe side and that I may draw the conclusion that as far as the storage capacity of the lakes is concerned the South Grand Canal improvement scheme is quite practicable.

This question being settled, it remains now to be seen whether it is possible to make the entrances to the lakes such that sudden rises in the river can either not occur or, if they do occur during extraordinary freshets that they are only limited in height and duration.

This is a very important point, for if the storage capacity of the lakes were ten times larger and the approaches to the lakes insufficient, that large storage capacity would not help at all.

The Grand Canal near Liu Chao rose from April to August about 3 M. although the Sze Ho and Wen Ho did not bring down such extraordinary quantities of water. Moreover, we note that the waterlevel of the Canal at Hsu Chia Ying Fang (this is just below the Fu Shan and Chao Yang Hu) only rose 0.80, which most probably would have been even less if the connection between that lake and the Wei Shan Hu had been better. From this the conclusion may be drawn that the lakes above mentioned had enough capacity to store the water of the Sze Ho and partly of the Wen Ho as well, without getting raised too much, but also, and this is certainly not less important, that the connection between the Sze Ho and the lakes was entirely insufficient to cope with the quantity of water brought down by that river in due time. For if the Toung Sze Ho, which is the connection, had been able to dispose of more water, the Si Sze Ho would only have received a small quantity and consequently the Grand Canal would never have been filled to the height which it reached on the 7th of August.

The waterlevel in the Grand Canal at Fen Siei Ko rose during the same period from about +35 m. to +39 m. Although the height of the waterlevel at that place depends, to a certain extent, on the fact of whether the lock at Liu Lin is closed or not, it would certainly never have come so high if the canal could have had by open locks sufficient capacity. That this waterway is absolutely insufficient as a conveyance of water is, therefore, I think sufficiently proved by the above facts, but besides it should not be used as such, as it is meant to be only a fairway, and a strong current would undoubtedly not be in the interest of shipping. Consequently it is necessary, in order to improve the present conditions, to find for the Sze Ho and for the Wen Ho proper communications with the lakes independent of the Grand Canal.

For the Sze Ho the solution is to improve the Toung Sze Ho, for the Wen Ho to open the ditches in the Nan Wang Hu, to enlarge the Niu To Ho and to improve the connection between the Chao Yang Hu and the Wei Shan Hu or to improve the discharge of the Ta Ching Ho into the Yellow River, which if possible would be better.

Calculations of the Required Cross Sections of the Connections Between Rivers and Lakes

Although, as I said already, it is not possible with the data on hand to give any definite solution, they are nevertheless sufficient to assist in forming some rough idea of the amount of work which will have to be done.

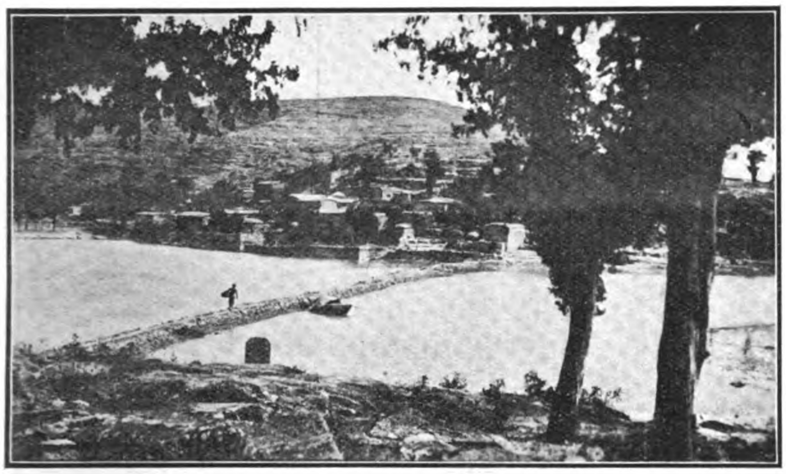
I will figure out here the area of the cross sections of the connections between river and lakes which are necessary to be able to cope with the amount of water brought down.

The Toung Sze Ho.—According to the survey of the South Grand Canal Conservancy Bureau, the length of the Toung Sze Ho from Chang Chia Chiao to Tu Shan Lake is actually measured 24.30 KM, whilst the difference in elevation is 5.91 m. From this follows that the average slope of the waterlevel is:

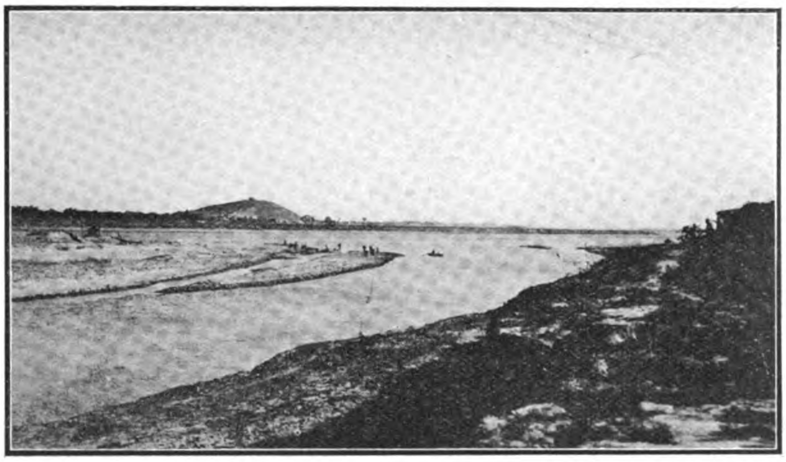
$\frac{5.91}{24300}$ or about 0.00024 m per m length

Now the discharge of a normal river is represented by the following formula:

$$D = A \times v \qquad \text{in which}$$



SCENE ON THE PO-HO



WHERE THE TA-CHING HO JOINS THE YELLOW RIVER

D is the discharge per second
A the area of the cross section and
V the velocity.

The velocity depends on the slope of the water level, the shape of the cross-section, the nature of the soil, etc., etc., and is expressed by the following formula:—

$v = c\sqrt{R \times i}$ in which

c is a coefficient which depends on the nature of the soil; its value is about 50.

R is $\frac{A}{C}$ that is $\frac{\text{the area of the cross section}}{\text{wetted cross section}}$

i is the difference in height over a distance of 1 meter or in this case 0.00024.

We find consequently that:

$$D = c \times A\sqrt{\frac{A}{C} \times i}$$

By assuming that the proportion of the average depth and width of the river is as 1 to 50, we are able to determine the area of the cross-section.

If h is the depth then the width is $50\,h$. Substituting in the formula all the items that are known we find

$$130 = 50 \times 50h^2 \sqrt{\frac{50h \times h}{50h} \times 0.00024} \text{ or}$$

$$130 = 2500h^2\sqrt{0.00024h}$$

$$16900 = 6250000\ h^4 \times 0.00024\ h$$

$$h5 = \frac{16900}{6.250.000 \times 0.00024} = \frac{169}{15}$$

$$h = 1.60 \text{ m about}$$

Consequently the Toung Sze Ho should have, in order to be able to carry down 130 cub. m. of water to the Tu Shang Hu per second, an average depth of 1.60 m. by a width of 80 m.

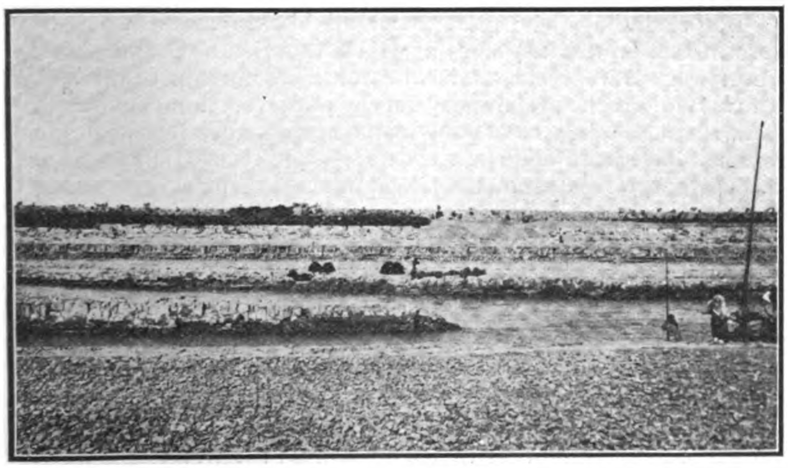
The Niu To Ho.—In the report on the Grand Canal improvement scheme by Mr. Pan, I find that the length of the Niu To Ho from Mang Tcheng back to Wang Kwei Tuen is 36 KM. and the difference in elevation only 2.35 M. This works out to a very gentle slope of 0.000065 M. per Meter length and the velocity would be therefore only very small so that a large cross-sectional area would be necessary to deal with the discharge of the Wen Ho efficiently.

In this case we would find

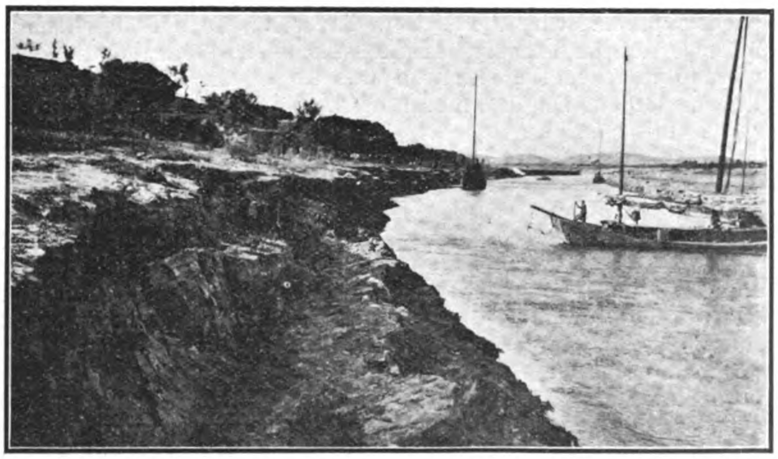
$$h^5 = \frac{16900}{6.250.000 \times 0.000065} \text{ or } h = 2.80 \text{ M about}$$

A canal with an average depth of 2.80 M. and 140 M. width would consequently be necessary to cope with the amount of water from the Wen Ho.

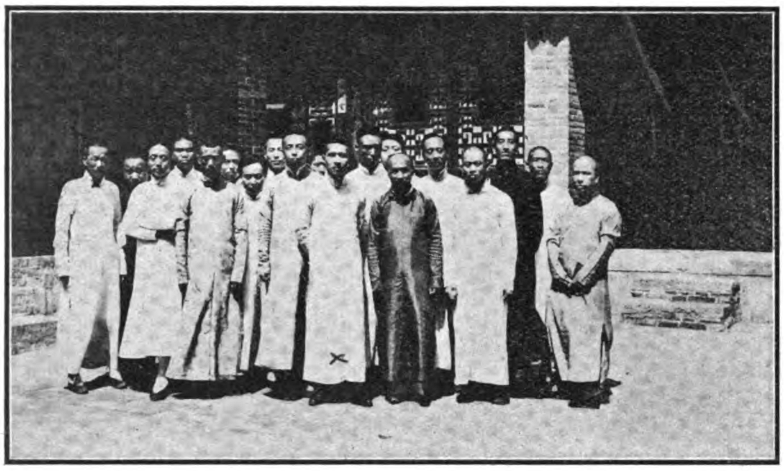
I think however that the conditions are a little more favourable for the following reasons: Probably the difference in elevation of 2.35 M. referred to is relative to the bed of the Niu To Ho, and although usually the slope of the water-level of a river is about parallel to the slope of its bed, this is not always necessary. In this case the difference in height of the water-level at each end is considerably more for the connection between the Wen Ho and the lake is not only the Niu To Ho from Mang Sheng lock to Wang Kuei Tuen, but begins already at the Grand Canal. Now if we have a look on the drawing showing the oscillation of the water-level in the Grand Canal, we see that during the low water stage the water at Fen Suei Ko is at 28.50 M. and near Hsu Chia Ying Fang at 33.50 m. As the communication between this place and the Wang Kuei Tuen is very wide, we may safely assume that the height of the water-level will be the same and consequently the difference in elevation of the water-level in the connection between Wen Ho and the lakes is



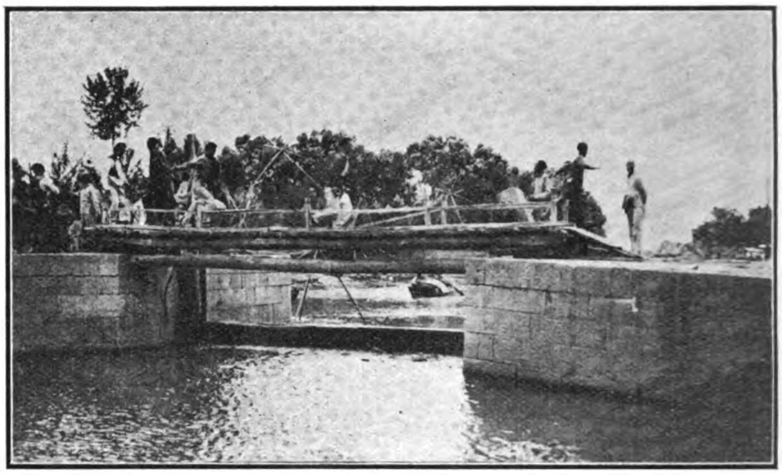
LOWER END RAPIDS NEAR THE MOUTH OF THE TA-CHING HO. THE FORMATION OBSERVABLE IS MUD



TA-CHING HO EMBANKMENT NEAR THE YELLOW RIVER, SHOWING THE EFFECTS OF EROSION



STAFF, SOUTH GRAND CANAL IMPROVEMENT WORKS, AT TSI NING-CHOW. (X) PAN, DIRECTOR OF THE SOUTH GRAND CANAL IMPROVEMENT BUREAU, SHANTUNG



LOCK ON THE GRAND CANAL

roughly 5 m. The length of the Niu To Ho has, however, been increased also and is not 36 H.M. but 48 H.M. The average slope is under those conditions 0.00012 and applying again the formula before used we find that:

h 1.86 m. and the width consequently 93 m.

But this is of course only where the bed of the river is at the required depth below the adopted water-level. In case the river should be less deep it has to be made deeper, but if the river should be too deep it cannot be altered. In such places, (in this instance near the Grand Canal) the cross-sectional area would with the same width therefore be larger than required and consequently the velocity would be smaller, but as the velocity depends on the average slope this slope would be less also. This would upset the entire calculation and we will therefore have to decrease the area of the cross-section. This can be done by making the channel more narrow.

Suppose that the bed of the river is not 1.86 m. but 2.86 m. below the assumed water-level. In that case we get roughly the corresponding width as follows:—

The slope of the water-level remaining unaltered the velocity is constant also, and so is the cross sectional area, from which it follows that:

1.86×93.m. $= 2.86 \times W$ in which W is the corresponding width or $W = 60$ m. about

From the lakes towards the Grand Canal near Fen Suei Ko the Niu To Ho should therefore, in case a uniform slope of the water-level is adopted, become more narrow as its depth increases.

As the necessary data, that is levels, etc., are not available as yet, it is impossible to say whether a canal as above contemplated is feasible. I say therefore once more and I should like to have this clearly understood, that the above calculations are only to be considered as an illustration and an attempt to get a rough idea of what has to be done.

Ta Ching Ho & Yellow River.—I have already in former pages explained why the Yellow River has such a detrimental influence on the discharge of the Ta Ching Ho and that the only way to improve the situation was to prevent the silt of the Hwang Ho entering the mouth of the Ta Ching Ho.

Is this possible?

Again the answer has to be postponed until the survey is finished and the data are collected, specially tide gauge readings, records which should be kept carefully. If it should appear that the water level in the Ta Ching Ho is often higher than the Yellow River, so that by an open channel the Ta Ching Ho could have a proper discharge, then it is worth while to study the question more carefully, but if on the other hand the opposite should be the case, it is useless and the question may be safely dropped. But even if the tide gauge records should prove that a proper discharge of the Ta Ching Ho by an open mouth could be possible the question of disposing of the Hwang Ho silt remains and this is a very difficult problem, which I am afraid could not be solved without heavy pecuniary offers. With reference to this, it is consequently advisable to ascertain first whether a general improvement scheme is possible without touching the afore-mentioned delicate problem.

The Outlet of the Storage Basins.—The only outlet of all the storage basins is the Grand Canal, which is connected with the Wei Shan Lake by the Han Chwang Hu Ko double locks with a total opening of 13.80 M. The capacity of this canal as a conveyance for water is, as I already said elsewhere in this report, very small, especially during the summer time, when the Ye Ho brings large amounts of water into the Canal and it is therefore only able to cope with the quantity of water which is stored up in the lakes over a longer period.

In case the conditions of the Grand Canal below the Wei Shan Lake could be improved in such a way that during the rainy season its discharge capacity could be equal to that in the winter, it is evident that the water-level in the lakes could either be kept lower during the whole summer or at least for the greater part of it, which would greatly benefit the drainage of the low lying country. That this is of very much importance goes without saying, and it would therefore be very good if the Ye River could be more independent of the Grand Canal. It would be desirable if this work could be taken in hand simultaneously with the South Grand Canal improvement in Shantung.

Financial Side of the Scheme

It is contemplated to defray the costs of the scheme out of the taxes to be levied on the reclaimed land at the rate of $1 per Mow, which would altogether amount to $826,000 per year. If this estimate, which is as I take it only a rough guess, should prove to be correct, it is possible to improve the conditions thoroughly and the productiveness of the scheme is then certain.

It is however at present not yet possible to say exactly which land and how much can be reclaimed as (which I have said before) first the survey and the levelling at least has to be finished, notwithstanding which, the general impression I get is that the scheme will pay for itself entirely.

Conclusion

Before ending this report I would like to say a word of appreciation on the manner in which the South Grand Canal Conservancy Bureau has, under the able Directorship of Mr. F. Pan carried out the preliminary survey and everything connected therewith. Not only have good maps been made, but accurate levellings have been done as well, tide gauge records have been kept, discharge measurements taken, in short, almost everything has been done which is necessary to serve as a sound basis, without which no proper plan can be made. Here and there some fault may be found, but not serious, or the data collected may fall short of the required standard of accuracy, but considering the little practise which the staff had the opportunity of obtaining the Bureau undoubtedly deserves the highest praise and has to be congratulated upon the work it has performed.

It is sincerely to be hoped that the Bureau will be enabled by the Central Government to continue its task for which it wants more funds in order to accomplish all the necessary work on which a definite scheme can be based, a scheme which promises all possible success.

RESTORATION OF MONARCHY IN CHINA

The Revolt of the Republicans

The record of the progress of events connected with the restoration of the monarchical system was closed in our last issue without any definite details being given of military movements. This was necessary because reliable news came to light very slowly, while rumours were numerous and conflicting.

As soon as it became evident that the Yunnanese troops seriously intended to fight for their "independence" the Government pushed on with its arrangements to dispatch a large number of troops from the north. The general plan of operations was to attack Yunnan with three armies. The first army under the command of General Tsao Kun, was to co-operate with the troops of Szechuan; the second army under the command of General Chang Ching-yao was to co-operate with the troops of Hunan, while the third army was to be under the command of General Lu Yung-ting, Military Governor of Kuangsi. It should be mentioned that the attitude of the province of Kueichow, which lies to the north of Yunnan, remained obscure until January 27 when it was announced that the officials there had decided to throw in their lot with Yunnan. Whether this decision was voluntary or compulsory is not clear.

The transfer of troops from the north to the scene of operations was necessarily slow, as from Hankow they had to be transported by river to Chungking, which was selected as headquarters. In the circumstances it is not surprising that the aggressive was taken by the Yunnanese troops, who invaded Szechuan. The first actual fighting appears to have taken place near Anpienchen in Szechuan, about thirty miles from Suifu. No definite information is available in regard to the numbers of either the Yunnanese or Szechuan troops, but success was certainly gained by the former, and it is said that the casualties sustained by the Szechuan troops totalled 300. About January 21 the Yunnan troops reached the city of Suifu on the Yangtze River, and occupied it, the loyal garrison withdrawing north of the river. In the meantime loyal troops were on the way up the Yangtze to Chungking but slow progress as already stated was being made owing to the difficulties of transportation. Later reports indicated that the Yunnanese were pushing on northwards to the rich salt well district of Tzeliutsing, with the object of obtaining contributions from the wealthy salt merchants. Other troops were said to be proceeding down river to Chungking, hoping to reach that Treaty Port before the loyal soldiers. How many troops the Yunnan leaders sent to attack Szechuan is not known. In fact no accurate estimate of the number of men in arms in Yunnan is available. There are various estimates, but 20,000 should be somewhere near the mark, with recruits being knocked into shape to make up wastage. As to the troops in Szechuan it is estimated that there are about 17,000 in the province, 6,000 at Chungking and 9,000 at Chengtu, while the rest were in scattered garrisons. A telegram from Chengtu dated January 27 officially stated that the arrival of northern troops at Tzeliutsing had relieved the salt district from danger.

After the occupation of Suifu the Yunnanese leaders sent forces to attack Luchow. This is an important city situated about mid-way between Suifu and Chungking, on the northern bank of the Yangtze River. If the Yunnanese could have gained possession of this city they would have been in a very good position to attack Chengtu, the capital of Szechuan, and to menace the communications of any force advancing to its relief from Chungking. The distance from Chungking to Luchow is somewhere about 120 miles. On several occasions it was reported that the republican troops had occupied Luchow, but these rumours were officially contradicted. The concentration of northern troops at Chungking steadily progressed and as their numbers were augmented the prospect of the Yunnanese securing Chengtu, which would have had an immense moral effect, grew steadily less.

Definite information about the movements of General Lu Yung-ting's army has been slow in forthcoming. An engagement, in which the loyalist troops were successful, took place at Loping in Yunnan, about twenty miles from the Kuangsi border. Later a report was in circulation that the loyalists had occupied Mengtsze, a treaty "port" on the Haiphong-Yunnanfu railway, but subsequent information showed that this news was at least premature.

Early in February the first news of marked activity on the part of the loyal troops operating in the Szechuan sector was received. A force of Szechuan troops under General Fung Yu-tsiang met the Yunnanese on January 31 about fifty li northeast of Suifu. An engagement ensued that lasted for several hours. The Yunnanese were defeated and sustained casualties estimated at from 300 to 500, including several officers. The loyalists took a number of prisoners, and captured two mountain guns and large quantities of munitions. After this success General Fung Yu-tsiang advanced towards Suifu to endeavour, in co-operation with other loyalist troops, to expel the republicans from that city.

On February 7 some news was received from the south of a disquieting nature, as it showed that the position had to be accepted that Kueichow was actually co-operating with the Yunnanese. The official report stated that the city of Kueiyang had been invaded by a force under Tai Kan which was joined by a portion of the local garrison. Tai Kan, it may be remarked, is a native of the province of Kueichow. Whether there was any fighting in connection with the seizure of Kueiyang is not clear, but it seems probable that there was not. Subsequently a force of about 1,000 men, stated in some reports to have been Kueichow troops, raided the city of Huangchow on the Hunan border. The official report states that there were no loyalist troops at Huangchow, and declares that the raiders after burning down government buildings, looted the city of all food-stuffs.

On February 8 Liu Hsien-shih, Military Commissioner of Kueichow, was cashiered.

A telegram from Chengtu, dated February 7, stated that with the exception of Suifu, all cities in Szechuan north of the Yangtze were in the possession of the Government troops, while telegraphic communication with Chungking had been restored.

Turning from the military situation for the moment, it is worthy of note that among the memorials received towards the end of January urging the Emperor to ascend the Throne with the least possible delay was one from General Chang Hsun. Rumours had been spread that General Feng Kuo-cheng and General Chu Jui, the Military Governor of Chekiang, had presented a memorial urging the establishment of a sort of Imperial Federation in China, namely the formation of a number of feudatory princedoms. The object of spreading this rumour was obviously to inspire a belief that instead of obtaining a constitutional government the country was threatened with the worst kind of autocratic rule. Flat denials were at once published by both Generals that they had submitted any memorial of the kind indicated. This, however, is only one of the innumerable baseless reports which were put in circulation, most of which originated from Japanese sources. Most of them related to stupendous victories alleged to have been gained by the republicans, and to serious outbreaks which were said to have occurred in Mongolia, Turkestan and several of the provinces. Almost invariably these reports were found to have no foundation in fact, or, when they had some foundation to have been grossly exaggerated. Among the most picturesque of these sensational reports was one which had its origin in the arrest of a minor Palace official on a charge of disclosing official secrets. This was magnified into the discovery of a plot to assassinate the Emperor-elect and the most circumstantial details were given of

the finding of bombs in the Palace. It was even stated that one of the Emperor-elect's sons was concerned.

If there was nothing spectacular in the operations of the loyalist troops against the republicans in the early stages, they were at least methodical. Instead of inviting, or at any rate risking disaster by premature offensive action with inadequate forces, the wise policy was adopted of mobilising a sufficiency of loyal troops before undertaking any major operations. At the same time care was taken that localities, important strategically or in other ways, should not be allowed to fall into the hands of the republicans, and, with this object in view, several minor actions were fought. In these, according to the official reports, the Yunnanese were invariably defeated with heavy losses, while many of their mountain and machine guns were captured. There is little doubt that the republican leaders thought that they could gain possession of Tseliutsing, where the salt wells are, and, perhaps, of Chengtu, the capital of Szechuan province. Sufficient loyal forces were employed to frustrate the attempt to gain possession of these places, but, as already stated, the real offensive on the part of the northern troops was delayed until all the necessary preparations had been made. When the safety of Tseliutsing, Chengtu and Luchou was assured the northern leaders were able to develop their plans at leisure. With stronger forces and infinitely greater resources, time was on their side. The only hope of the republicans was to achieve an early dramatic success that might bring waverers to their aid. This they could not accomplish, and their failure undoubtedly lost them assistance upon which they had counted.

Some interest and not a little resentment was caused by the reproduction in the Peking newspapers of February 10 of a "manifesto" issued by the members of a propagandist organization formed by Japanese residents in the Chinese capital. The manifesto appears to have been sent to Tokyo and to have been published there in some magazine, copies of which found their way to Peking. The ostensible object of the persons by whom the manifesto was issued was to stir up their Government to take "strong action" in China. They urged that the Western Powers were unable to interfere whatever policy Japan chose to adopt in regard to China, and that the unique opportunity should be ruthlessly seized. After indulging in much unmeasured abuse of Yuan Shih-kai, the framers of the manifesto recommended that a third Note of Advice in regard to the re-establishment of the monarchical system should be presented to China. This would result, they pointed out, in loss of prestige by the Central Government and consequent encouragement to the revolters, and it might reasonably be expected that China would be thrown into a state of chaos. Then Japan's opportunity would come. That was the gist of this precious manifesto. While it would be unwise to attach too much importance to the utterances of men who may or may not reflect the opinions of the bulk of their countrymen, it would be still more unwise to ignore the fact that the policy advocated by them has found support in much more influential quarters, though not expressed with such brutal frankness. Undoubtedly there are a good many Japanese who see no immorality in a breach of treaty undertakings by Japan if it can be committed with impunity. Whatever the significance, or insignificance, of the manifesto its publication caused much resentment among the Chinese, by whom it is taken as collateral evidence that the revolt in Yunnan is not regarded by Japan as altogether displeasing.

On February 13 a Mandate was issued which confirmed rumours which had been in circulation of the defection of General Liu Cheng-hou, commanding the 2nd Division of troops. The Mandate states that Liu was sent with one brigade of the 2nd Division to defend the city of Yungning, but instead of doing so he inspired his troops to revolt and assisted the Yunnanese in their designs upon Luchou. The attempt to surprise Luchou failed, and after a vigorous attack by the Government troops the republicans fled. For his disloyalty, the Mandate concluded, Liu must be cashiered and executed as soon as captured. Further information in regard to the attack on Luchou was given in an official report issued by the Wai Chiao Pu (Foreign Office) on February 15. It stated that, knowing that a large portion of the loyal troops stationed at Luchou had been sent to attack Suifu, Liu, in conjunction with Yunnanese troops, attempted to take Luchou by surprise on February 2. He took Lan Tien Pa on the southern bank of the river opposite to Luchou, on the 5th. The next day, however, the loyal garrison at Luchou received reinforcements. On February 8 the republican troops crossed the river at Lohanchang and for three days and nights a fierce battle went on. The republicans were eventually driven across the river, Lan Tien Pa and Tai Ping Chang were retaken by the loyalists and the republicans retreated to the south. The latter sustained heavy casualties and lost six heavy guns.

After the official announcements in regard to the fighting in the vicinity of Luchou no news of importance was forthcoming for some time. The arrival of General Tsao Kun, the Commander-in-Chief of the loyalist troops, at Chungking on February 15 effectually disposed of the rumour circulated by republican sympathizers that that important city had declared its neutrality. Some fighting is said to have taken place near Chikiang, which is on the southern bank of the river opposite Chungking, but no authentic information has been received at time of writing. The one definite conclusion to be drawn from the reports received from all sources up to February 15 was that the forward movement of the republican armies has been arrested.

Towards the end of the month it was announced that the Government had provided for a force of 100,000 men to suppress the rebellion and that arrangements had been made for a campaign of six months. The estimated cost was $30,000,000 of which $20,000,000 had already been provided for in the Budget. The balance would be obtained either from a loan or provincial contributions.

Fighting occurred near Nashi on February 18 which resulted in the loyalists capturing all the hills outside of the city except one. The republican troops are said to have suffered very heavy losses.

On February 25th, after a sharp encounter with the Government troops near Nashi in which the republicans suffered severely, they retreated. A detachment was almost exterminated in crossing the river. The following day a portion of the republicans advanced toward Tungshih but were met by Government troops and forced to retreat with heavy losses. Severe fighting took place again on the 26th near Nashi which resulted in the capture of the second line of the republican defences.

Nothing further has occurred in the Suifu region where the republicans are entrenching on the mountain ridges. Upwards of three hundred wounded Government troops are in the hospital at Luchow. A big battle is expected to take place as soon as General Tsao Kun starts his Westward movement.

Although it was generally understood that the enthronement ceremony would not be proceeded with, no official announcement of its definite postponement was made until February 23. A Mandate was issued on that date, inspired perhaps by the presentation of a Memorial from Prince Pu-lun and others urging the Emperor-Elect to ascend the Throne without delay. The translation of the Mandate published by the *Peking Gazette* read as follows.—

Telegraphic and written petitions and prayers have been received from civil and military officials, representatives of the citizens, various organisations as well as individuals, urging that the Throne be ascended at an early date. This has been proceeding almost daily. To the patriotic people these acts are intended to secure to the country a permanent peace, but on the part of the Person holding power, HE has the responsibility of looking into the general situation and acting with wise judgment. The provinces of Yunnan and Kueichow are raising rebellion; and the homes of many are disturbed. The conditions of people living in western Hunan and southern Szechuan, where the robbers have raided, are pitiful to hear, they having lost their homesteads. The painful thought caused by the sufferings of my people has disabled us from enjoying our sleep and food. In addition to this the unscrupulous have invented rumours of a most fantastic character. Our original intention to save the country and the people has unfortunately been made a subject of quarrel for privileges and rights. How can our heart be at ease if we should ascend the Throne at this moment? We are now resolved that this question must be postponed. It is presumed that all patriots will readily understand our decision. Hereafter all telegrams and memorials praying for an early accession to the Throne shall not be allowed to be presented. Let this be universally proclaimed.

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CONTENTS

	PAGE
South Grand Canal Conservancy	333
Monarchy Movement and Revolt of the Republicans	339
Conservancy Work in China	341
The Chinese Middleman and Trade in China	342
Japan's Railways and Tramways	343
Mining in Japan	343
Excessive Taxation in Northwest China	344
On China's Inland Waterways	344
Japan's Budget for 1915-1916	346
Philippine Woods in the China Market	348
British North Borneo	353
Philippine Government's purchase of Manila Railroad	357
Native Dyes of China	358
Report of the Japanese Railways for 1914-1915	360
The Railways of Siam	365
Candy Mechanical Filter	369
Engineering and Financial News	371

CONSERVANCY WORK IN CHINA

In this issue we publish the report of Mr. H. Vanderveen, the Consulting Engineer to the Chinese National Conservancy Bureau, on the scheme for the improvement of the Grand Canal in Shantung Province, and a paper by Mr. H. von Heidenstam on China's Inland Waterways. These matters are of such immediate and far-reaching interest to China that we need make no apology for publishing the papers at length. Especially is this so since Mr. Vanderveen's report was responsible for a reconnaissance of the territory included in the scheme being made by Mr. W. F. Carey, of the firm of Siems & Carey, of Minneapolis, with a view to ascertaining whether the work is actually practicable or not. If Mr. Carey decides that the work can be profitably carried out it is likely that the Government will enter into a contract for a loan to put the scheme into effect.

This is an important development of the plans made by the Government sometime ago. The Government has for quite a considerable time been investigating the neglected waterways of the country and in 1914 formed a Conservancy Bureau to undertake the necessary labors in this connection. On January 12, 1915, too, a mandate was issued instructing the various Conservancy Bureaux to consult with the National Conservancy Bureau with regard to any conservancy problem that may require consideration. The mandate further pointed out: "It is our aim to have all the water courses of the country take the form of the blood system with the veins and arteries doing their respective work properly and scientifically—every stream with a proper outlet and a proper slope," which is conclusive proof that the Central Government has been and is fully alive to the necessity of giving attention to this matter. In a letter to a contemporary Mr. Vanderveen supplied some facts which are of interest. Early in 1914, he pointed out, the Government, being fully aware of the necessity and importance of doing something to their badly neglected waterways, established the National Conservancy Bureau, of which His Excellency Chang Chien was made Director General. Sub-bureaux were established in several Provinces, the best known being those in Kiangsu and Anhui on account of their connection with the survey of the Huai River flood district, a survey which enabled the Board of American Red Cross Engineers during their short stay in China in the summer of 1914 to formulate a general plan of improvement. Other bureaux were formed without connection with the Central Bureau, one being the National Conservancy Bureau. As the Government feared that this might lead to disjointed effort the mandate referred to above was issued to consolidate and unify all conservancy matters under the Central National Bureau. Active work has since then been undertaken, and surveys of various localities have been made. Investigations have been carried on in connection with the Huai River scheme, one of the most important in China; the West River territory in South China, the Grand Canal, and the Sea-wall at Hangchow. Particularly has much work been done by the South Grand Canal Improvement Bureau in Shantung. This Bureau has dealt with the work outlined in the report by Mr. Vanderveen, which we publish. In addition to these problems numerous others have been having full attention and methods have already been devised for collecting the necessary data for improvements.

The conditions obtaining in China have of course materially affected the consummation of several desirable plans, and the chief among the factors making for delay is the shortage of finances. It is wrong, however, for any one to believe that the Chinese do not appreciate the value of conservancy work. The tremendous schemes for flood control and land protection which now exist is the answer to skepticism. For over forty centuries the Chinese have been building dykes and using canals. Important work that has been done, as was pointed out in a recent article by Mr. C. D. Jameson, is that in connection with the Yangtze and Yellow River systems. He says that it may be taken as a fact that all of the rivers flowing through the delta plain have their waters more or less confined by dykes from where they enter the plain to the sea. This applies to the Yangtze River, from near Ichang, for one thousand miles; to the Han River for four hundred miles, until it enters the Yangtze at

Hankow (these Han dykes are on both sides of the river, and in places are thirty feet high); to the Yellow River from Meng Hsien to the sea, about three hundred miles; and to all the other rivers entering this great delta plain of the north or the delta plain around Canton and Southern China.

In addition to the dyking of the rivers, the delta from Hangchow on the south to Tientsin on the north—eight hundred miles—is a network of canals for a width of one hundred to one hundred and fifty miles west from the sea.

Within the area from Ningpo to the Yangtze, one hundred and eighty miles, and from the ocean west some one hundred and sixty miles, there are over twenty-five thousand miles of canals,* great and small; and none included are so small but that two small native boats may pass each other.

From the Yangtze north to the old bed of the Yellow River and east of the Grand Canal, one hundred and twenty miles by one hundred and thirty miles, there is a similar network of canals. North of the old bed of the Yellow River, it extends to the borders of Shantung, and north of Shantung, to Peking, with a diminishing number of canals. In this great delta plain of the Yangtze and Yellow Rivers there are not less than sixty thousand miles of canals for transportation which also serve for irrigation, drainage, and flood control.

As protection from the ocean tidal waves, there are, south of the Yangtze, some three hundred miles of sea wall; and from the Yangtze north, for over one hundred miles, the great Maritime Dyke, built in 1027 A.D.

More work has probably been done and more money expended upon flood control during the last two thousand years in and for the section of country east of the Grand Canal and from the Yangtze River north to the old bed of the Yellow River, than in all the remainder of China.

This is a low, flat section but a few feet above sea level. The soil is very rich and the climatic conditions suited to the culture of rice and wheat. Bordering on the Grand Canal and being covered with a network of secondary canals, it has been in touch with China's markets for three thousand years. Not only was it the granary of China, but the whole sea coast was and is one vast salt manufactory. And it is still upon this section that continued effort and money must be expended. For many years the main canals have been neglected and rivers have silted, the effect being that tremendous areas of country have been put out of cultivation and have deprived millions of people of secure homesteads and farms. The recent attention which has been given to the Huai River and Grand Canal areas has awakened officials to the necessity of action and it is gratifying to see that steps are new being taken to effect improvements which will be of material benefit to the country at large.

* See article on "National Irrigation and Conservation in China" in the FAR EASTERN REVIEW, January, 1914.

THE CHINESE MIDDLEMAN AND TRADE IN CHINA

The prospect of intensified competition in the commercial field of China after the war has caused considerable attention to be paid to the methods by which business has been conducted in the past. The British, officially and unofficially, have been particularly energetic in seeking out the faults in their own methods and the strong points in those of their rivals, with the object of correcting the one and adopting the other. In this connection much valuable work has been done by Mr. T. M. Ainscough who, in the capacity of Special Commissioner to the British Board of Trade, travelled over most of the great trade routes in China investigating conditions and studying the methods by which business is carried on, particularly in relation to foreign trade. A similar service has been performed for America by Mr. Arnold, but he was more directly interested in trade possibilities than methods, though he has made many excellent suggestions in regard to the latter. To his work Mr. Ainscough brought a trained mercantile mind, that is to say he has himselt been a merchant, and was consequently thoroughly competent to offer practical suggestions after completing personal investigations. The recommendations that he makes for the promotion of British trade in China deserve careful study by every nation that is interested in the field.

Great stress is laid by Mr. Ainscough upon the elimination of the Chinese middleman. Under existing conditions this is the counsel of perfection. The Chinese middleman cannot be at once eliminated simply because there is no one to fill his place. The number of foreigners who possess a knowledge of the Chinese language and who understand the intricacies of Chinese trading methods and of inter-provincial transport and other dues is extremely small. Until that number be considerably increased the Chinese middleman will continue to be an essential if any business at all is to be done. It is true that the system of indirect trade is costly and an undoubted impediment to business expansion. Though the foreign merchant and the Chinese middleman are working together, their interests are not identical, in fact they are not infrequently in conflict. Cases have been known of the middleman buying for himself from the foreign merchant at a low figure in order to sell at a much higher rate to a waiting customer. In existing circumstances that sort of thing cannot be checked, and it should be said in justice to the middlemen that there have been but few recorded cases of direct spoliation by middlemen of their foreign partners—it is to be understood that the word partners is only used in the restricted sense applicable to the association between the foreign merchant and the middleman. The fact that the interests of the parties are not identical is, however, calculated to prevent trade from being pushed with the vigour and determination that can be shown when direct contact with purchasers or sellers can be established.

Another important suggestion is the organization of buying and selling in the interior. This is obviously highly desirable, but again the lack of a sufficient staff acquainted with the language, customs and business methods of the Chinese is a bar to its immediate adoption. That more business and better business would result from its being sought at the fountain-head, so to speak, is certain. The German is the only business community in China that realized from the outset that trade could only be satisfactorily developed by getting into direct touch with principals and by organizing marketing in the interior. That fact having been realized the German firms took the indispensable preliminary step of compelling their foreign staffs to learn the Chinese language and to study the character and customs of the people. It may safely be asserted that a larger proportion of German commercial men in China have a knowledge of the language and the tastes of the people than those of any other nationality, though it must not be forgotten that the staffs of the British-American Tobacco Company and the Standard Oil Company also include many members who have qualified themselves for direct trading. But, although the Germans have achieved a considerable degree of success in their efforts to emancipate themselves from the thraldom of the Chinese middleman, they have not been able to dispense entirely with his services.

A consideration of the situation in the light of the known facts compels the conclusion that it will be a long time before direct trade can become general. Although there is reason to believe that the difficulty of learning the language has been magnified, and that faster progress will be made by the new and improved methods of teaching that have been evolved, the creation of a large staff of qualified foreigners will take many years. The steps that are being taken to establish schools for the exclusive use of foreigners engaged in commerce will undoubtedly be of ultimate benefit, but it must be recognised that for a considerable time to come indirect trading must continue. In such circumstances it might be worth while to cast about for some means whereby closer association and identification of interests of foreign merchant and Chinese middleman could be devised. The formation of Sino-foreign companies and partner-

ships immediately suggests itself. In the past the difficulty created by the extra-territorial status of the foreign merchant has been a serious obstacle and moreover there has been no satisfactory Chinese company law. This latter deficiency has been largely rectified since the present Minister of Commerce, Mr. Chow Tze-chi, took office, and the reform of the judiciary that is being carried out should soon render it possible for Sino-foreign companies and partnerships to carry on business successfully. If this is found to be feasible the elimination of the middleman will be quickly accomplished by transforming him from an intermediary to a partner.

JAPAN'S RAILWAYS AND TRAMWAYS

In order to unify the arrangements of transportation in Japan and promote its economic advantages, the Government, according to the Railway Nationalisation Law issued in March, 1906, purchased the lines belonging to seventeen Railway Companies, namely, the Kobu, Hokkaido-Tanko, Ganyetsu, Nippon, Nishinari Sanyo, Kiushiu, Hokkaido, Kyoto, Hankaku, Hokuyetsu, Sobu, Boso, Nanao, Tokushima, Kwansai, and Sangu. Their aggregate mileage on the day of purchase was 2,823 miles, and the total amount of loan bonds delivered to the private railway companies as purchase-price was *yen* 476,318,800 (£48,788,159), which was completely paid on the last day of July, 1909.

The working of the Japanese Railways during the year 1913-14 gave according to the Financial and Economic Annual of Japan, the following results:—

Of the aggregate mileage worked of 7,291 miles, 5,473 miles were represented by the State lines, and 1,121 miles by the private lines, and 697 miles by the South Manchuria Railway. The number of passengers carried was 211,251,883, and the tonnage of freight 47,063,324 tons, while the traffic receipts amounted to *yen* 138,577,754 (£14,194,177).

On the State lines, the average mileage worked for passenger traffic was 5,289 miles and for goods traffic 5,344.3 miles. The number of passengers carried was 167,773,143 and goods amounted to 36,348,362 tons. Traffic receipts were:—passenger *yen* 57,296,280 (£5,868,717); goods *yen* 53,737,253 (£5,504,174); sundries *yen* 2,443,522 (£250,284); total *yen* 113,477,055 (£11,623,175). The working expenses, interest on loans, etc., amounted to *yen* 92,932,740 (£9,518,871) and the net profit, after deducting the said items of expenses from the receipts, came to *yen* 20,544,315 (£2,104,303). The estimated receipts and expenses of the Imperial Government Railways for the financial year 1915-16 are, *yen* 128,118,447 (£13,122,856) for receipts and *yen* 110,279,742 (£11,295,682) for expenses, giving a net profit of *yen* 17,838,705 (£1,827,175); in these expenses is included *yen* 37,899,391 (£3,881,941), the interest on the public loans for the purchased railways, etc.

The Law relating to Light Railways was issued in April, 1910 and put into force in August of that year. The construction of Light Railways was formerly subject to various inconveniences, as it was practically regulated by the ordinary railway or the tramway regulations. It was to obviate this difficulty that the special measure was adopted. This legislative measure guarantees the profit of private light railways within a limit not exceeding 5 per cent. of the construction expenses.

The private and light railway companies open to business existing at the end of the year 1913-14 numbered 69 with the total open mileage of 1,121.07 miles and an aggregate capital of *yen* 77,439,222 (£7,931,908). They carried during the year 39,267,106 passengers and 4,237,637 tons of goods, while the traffic receipts and expenses were *yen* 7,135,516 (£730,873) and *yen* 3,808,433 (£390,088) respectively, leaving a balance of *yen* 3,327,083 (£340,785) as profit. The cost of construction of open lines amounted to *yen* 65,587,272 (£6,717,942).

The South Manchuria Railway Company was founded in July, 1906, with a capital of *yen* 200,000,000 (£20,485,507), of which *yen* 100,000,000 (£10,242,753) was contributed by the Government with the real property, *yen* 60,000,000 (£6,145,652) was issued to the public, and *yen* 124,000,000 (£12,701,014) was paid up, *yen* 40,000,000 (£4,097,101) having not yet been raised. The total mileage of open lines at the end of 1913-14 was 697 miles, the total number of passengers carried in the same year was 4,211,634 and the total amount of goods was 6,477,325 tons. The total receipts amounted to *yen* 42,417,123 (£4,344,681) and expenses to *yen* 35,249,844 (£3,610,555), giving a net profit of *yen* 7,167,279 (£734,127). Of the above, the earnings of the railway came to *yen* 22,275,132 (£2,281,587) and its working expenses to *yen* 7,913,948 (£810,606).

The electric railways existing at the end of the year 1914 numbered 66 with an aggregate capital of *yen* 163,113,500 (£16,707,313), and the total mileage of their open lines was 691 miles and that of the lines not yet open 242 miles. The companies which have not yet opened business numbered 27 with an aggregate capital of *yen* 20,360,000 (£2,085,425), and the total mileage of their projected lines was 282 miles. In addition to the above, there were electric railways owned by the Tokyo, the Osaka and the Kyoto Municipalities with an aggregate capital of *yen* 136,629,177 (£13,994,589), the total mileage of their open lines being 120 miles and that of the lines not yet open 47 miles.

MINING IN JAPAN

The present Mining Law in Japan came into force in 1907; and by the term 'minerals' in that law are meant the ores of gold, silver, copper, lead, bismuth, tin, antimony, mercury, zinc, and iron, iron pyrites and chromite, manganese, tungsten, molybdenum, arsenic, and phosphorus ores, graphite, coal, peat, petroleum, asphalt, and sulphur. To other minerals, the above law does not apply, and as to alluvial working, a special law was established in March, 1909. By the term 'mining right' is meant the right of mining or prospecting for the above-mentioned minerals. The mining right can be enjoyed only by Japanese subjects and juridical persons constituted conformably to the laws of the Empire. The right of mining may be acquired with the permission of the Minister of Agriculture and Commerce, and the right of prospecting, with the permission of the director of a mine inspection office. The mining right is classed as real right to which the provisions relative to immovable property are correspondingly applicable; and it is indivisible. It cannot be made object of rights other than those of succession, transfer, measures taken in consequence of non-payment of national taxes, and execution; but the right of permanent mining may become the object of a mortgage. The duration of a right of prospecting is two years from the date of the registration thereof, but there is no limit of duration with regard to a right of mining. The area of a mining set must be, for collieries, not less than 50,000 *tsubo* and for other mines, not less than 5,000 *tsubo*, nor exceed for mines of all kinds 1,000,000 *tsubo*. In connection with this new Mining Law was promulgated in March, 1905 the Mining Mortgage Law, which enables owners of mining rights to create mining foundations with a view to the mortgage thereof. A mining foundation may be formed with the whole or a part of the following which belong in respect of mining to the same owner of a mining right:—

(1) Rights of prospecting and mining; (2) Land and works; (3) Superficies and right of using land; (4) Right of hiring things, to which the letter thereof has given his consent; (5) Machines, tools, instruments, vehicles, vessels, oxen, horses, and other appurtenances.

The total yield of mines in Japan Proper in 1914 came up to about *yen* 153,309,716 (£15,703,136), being an increase on the preceding year of *yen* 6,460,924 (£661,777). If we add to this the output of the Steel Foundry and the yield in Chosen and Taiwan, the total amount will come up to about *yen* 179,635,000 (£18,399,570) as follows:—

	yen	
Japan Proper	153,309,716	(£ 15,703,136)
Steel Foundry	13,383,611	(£ 1,370,850)

Chosen	.. ..	8,402,649	(£ 860,663)
Taiwan	.. ..	4,539,787	(£ 464,999)
Total	.. ..	179,635,763	(£ 18,399,648)

The total number of applications relating to mining in 1914 was 6,209, a decrease of 76 on the preceding year. Although the applications for prospecting and mining increased by 4 and 9 respectively, there was a falling off of 89 in the number of applications for alluvial mining owing to the decrease of applications for the mining of alluvial gold at Yame District in Fukuoka Prefecture and Ishikari in Hokkaido, so that the total number of applications relating to mining showed the decrease mentioned above. The number of mine-lots at the end of 1914 was 13,349, of which the lots for mine prospecting numbered 6,428 owing to an increase of the petroleum mine-lots and colliery lots and showed a record increase of 676 on the preceding year. The lots for mine-working numbered 5,324, being less than the figure for the preceding year by 64. But this was mainly due to the amalgamation of the lots; their total area has annually increased. The alluvial mine-lots numbered 1,597, including those for gold dust and iron sand, an increase of 46 on the preceding year. The volume of import trade of mine products during the same year was *yen* 57,712,621 (£5,911,361) and that of export trade *yen* 83,787,932 (£8,582,192), the total volume being *yen* 141,500,553 (£14,493,553), a decrease on the preceding year of *yen* 25,486,111 (£2,610,479). Although the export trade has been carried on since the beginning of the year in a comparatively favourable condition and showed an increase on the preceding year of about *yen* 100,000 (£10,243), notwithstanding that the trade has been greatly affected since August by the European war, yet the import trade decreased by about *yen* 25,500,000 (£2,611,902), chiefly owing to a falling off in the importation of metal, and thus the total volume showed a decrease as stated above. The amount of capital invested in mining enterprises by individuals can not be ascertained, but as regards the capital invested by companies, *yen* 20,310,850 (£2,080,390), of which *yen* 12,550,850 (£1,285,553) was paid up, was invested during 1914 through the establishment of new companies and the increase of capital of those already existing. Against this must be set the amount of reduction of capital due to the dissolution of companies so that the aggregate nominal capital of mining companies at the end of 1914 amounted to *yen* 251,441,400 (£25,754,522) being an increase on the preceding year of *yen* 18,760,850 (£1,921,628), of which *yen* 201,578,975 (£20,647,237) was paid up.

EXCESSIVE TAXATION IN NORTHWESTERN CHINA

In the January number of the FAR EASTERN REVIEW, under the heading of "Some Thoughts for China's Benefit," we drew attention to the lamentable condition of affairs produced in the Kweihwacheng-Suiyuan region by excessive taxation and brigandage. It is interesting to note that the Peking Government became so alive to the dangers with which the situation was pregnant that they sent a Special Commissioner to make an investigation and as a result of his report a Mandate was issued on February 22, which, if enforced, will be of great benefit throughout the country. The Mandate, as translated by the *Peking Gazette*, was as follows:

"Advices are not wanting in ancient teachings that national levies on the people must be in accordance with law. This is peculiarly true whilst a new empire is in the making. The finances of China, ever since the days of Hsin Hai, have been undermined by desperadoes at the very roots. Both the Government and the people have been financially embarrassed, whilst none of the obligations, such as foreign loans, military expenditure and administrative expenses, could be decreased. The Government has, therefore, been compelled to resort to the people. Under the circumstances the officials in charge of the collection of taxes should give heed to the virtuous intention (of the Emperor) and consider the case from both sides. Repeated orders and instructions have been given, advising and cautioning them, but neglect has grown with time, and certain corrupt officials have dared to oppress the people under the pretext of performing their official duties. The mere mention of such cases is enough to cause us bitter remorse. A report reached us sometime ago that the local officials of Kuei-Sui have been levying excessive taxes on the people, and orders were given to the Ministry to make confidential investigations through officials specially appointed. A report has now reached us that the regions named have been overburdened with excessive taxation in addition to corruptions of countless forms, among which the cart-tax and taxes on minor articles have been the cause of much complaint and grumbling. As the regions of Kuei-Sui are situated on the unproductive frontier, it is impossible to allow such corrupt officials, who do not care for the lot of the people, to extract money from them under skilfully created excuses. Another high official has been despatched to the spot, to deal with the matter; and the Ministry of Finance has been ordered to instruct the branch Bureau of Finance to consider the conditions of the local places and to abolish all the taxes which tend to harass the people in order to show our sympathy, and to avoid oppression. It is impossible to say that similar conditions do not exist in other provinces. The provincial high Authorities as well as the chiefs of the Bureaux of Finance are hereby ordered to instruct their subordinates to bear in mind the difficulties of the day and carefully measure the means of the people, whilst collecting the various taxes which must be in accordance with law and regulations. If any be found creating new levies for the purpose of extorting money, he will be punished without leniency upon discovery. Let this mandate be universally proclaimed."

ON CHINA'S INLAND WATERWAYS

Their Future Development as Part of an Organized Transportation System

[EXTRACTS FROM PRESIDENTIAL ADDRESS OF H. VON HEIDENSTAM, ROYAL SWEDISH CORPS OF ENGINEERS, BEFORE THE ENGINEERING SOCIETY OF CHINA]

In these days of keen competition between nations and individuals—in all parts of the world and on all fields of human activities—every nation, who wishes to live her own life in freedom and strength, is compelled to work with all her energy on a rational utilization and development of the material resources of the country as the only means to form the necessary economic basis for national existence and general progress and development. The Chinese people with a history, philosophy and character so different from the Western Nations, may not find this task to their liking, but necessity will soon be knocking at her door and the sooner the nation prepares herself for this work, the greater are the chances that she will succeed.

With her great wealth in agricultural land, in minerals and natural resources and possibilities, China possesses the most promising qualifications for a sound economic development. Modern competition and material culture have, however, reached such an advanced stage that organization, system and efficient scientific methods are required to achieve that end.

A recognized necessary factor in our Western scheme of material development is the care and furtherance of communications and transport facilities. Amongst the different means of transport in China, the inland waterways, rivers and canals can with safety be supposed always to show a larger amount of traffic, i.e., a larger aggregate number of ton miles, than any other. Thanks to nature and the energy of generations gone-by, the traffic on waterways early reached a high degree of development. So much so that even now, after centuries of neglect, in many districts the facilities offered by the waterways seem to be fully sufficient for the present demand. While admittedly the immediate needs of China lie on the general administrative and financial fields, commercial and industrial development has to go hand in hand with the administrative improvement and although the question of inland waterways as a whole can not be solved to-day or to-morrow, particular instances of waterway problems will soon present themselves and in order to avoid the usual mistakes of haphazard methods, an investigation with a view of

establishing a method and an authority for the handling of such problems appears profitable.

It may be interesting first to review the general question of waterways as compared with other means of transport, particularly railways. The historical order of development of lines of transport has been: rivers—roads—canals—railways. With the coming of the railway in the last century, the inland water communications suffered a serious set-back. The reason therefor was that the waterways in the early days enjoyed an absolute monopoly for transport of certain classes of goods, and like most monopolies, the water-transport monopoly was misused by the imposition of exorbitant freights and tolls. The advent of railways revolutionized the transport world, showed the canal freights to be exorbitant, compelled a general reduction in freight charges and this caused a temporary stagnation in waterway development the world over. In England, the new private railway companies were compelled, in many cases, to buy out the canals, so as to overcome opposition from vested interests, and a large percentage of English canals remain in the hands of the private railways; but on the European continent where rivers and canals are more naturally adapted for and predominate as means of transport, a resuscitation of inland navigation has lately taken place.

Even in topographically favourable country, without inclines and plenty of water available, the average cost of construction of a canal is quite equal to that of a railway carrying the same traffic, but the cost of maintenance and working, i.e., staff, stock, and traction is less on waterways than on railways. The wear and tear on the cargo-carrying stock is smaller and the life of plant longer. And generally speaking a unit of motive power can haul a greater weight on water than on rail if the most favourable conditions for water hauling have been obtained. In any fair comparison between rail or water, one must of course presume that in both cases the methods of handling traffic, loading, and unloading, and general organization are full developed and rational. It is not difficult to show that for intense slow traffic, transport on navigable rivers is cheaper than any railway transport, but in broken, undulating country, where a canal may possibly be constructed, but the traffic is not highly developed, the railway will prove more economical.

The last 255 years have seen not only the European but also the American continent very busy in setting its canals and rivers in order for inland navigation, generally by initiative and under management of the state. In the face of much opposition it has there been found that when constructed on truly economical lines, railways and waterways supplement each other and mutually increase each other's traffic and economic value.

It is well to keep in mind that from the point of view of national economy, the question of cheap transport is a vital one, because all expenditure on transport is of necessity an unproductive one, as it neither improves nor creates new values or products, and the bringing down of the transport cost to a minimum thus means advantage both to producer and consumer.

On account of the varied objects served by waterways, the handling of the waterway-problem on pure business principles—i.e. with a view to returns on capital—is by no means possible and a qualified opinion on the point, whether the advantages accruing from a waterway are worth the expenditure, is often difficult to form. But as I am here limiting myself exclusively to the transport side of the general problem of waterways I think I am right in saying that a waterway for cheap transport of goods (or such part or percentage thereof as may be considered performing transport duty) should be always judged also from the business-point of view, with all allowances made for the peculiarities of each case. For instance in cases where waterways are free from tolls it may throw an interesting light on the value of such a waterway, if a calculation were made to show, what tolls would have to be collected per ton (or ton mile) in order to make the canal a self-supporting concern.

Further, it should be understood that it is in regard to the mode of working where the improvement and development of waterways has to be found nowadays, which ought to be specially remembered when the question is applied to China. The first and most important step of improvement on natural waterways is to ensure the safety and continuity of navigation by establishment of navigational aids, by signals and buoys, by removing of obstacles, by control and supervision. The next step would be to rationalize the handling of cargo, the general organization and management and the size of vessels and mode of traction, and first after or simultaneously with those reforms, the problems of regulation of rivers and large canal-works can be successfully tackled.

Reverting to the conditions in China, the present state of her navigable inland waterways is all but creditable to her. Chaos and neglect are supreme everywhere. The only light spots in the picture are the places where the Maritime Customs have succeeded in reforming and improving things. I hold, however, that the time is soon approaching when the problems of inland navigation as part of the great problem of cheap transport should be given full attention in this country and the reasons which speak therefor, I shall now briefly put before you:

The railway system will soon be comparatively well developed and by the completion of the lines now under construction, the Hankow-Canton, the Hankow-Szechuen, the Nanking-Changsha, the Pukow-Singyang and certain other proposed lines, the Government will, as far as trunklines go, have accomplished the majority of the main commercial, strategical and political lines, which in any case would be required in order to bind together, politically and strategically, this vast empire.

Considering that in the rational development of the communications of any country, a stage will soon be reached when a proposed further railway development should always be compared with possible waterway development and *vice versa*, it is clear that the sooner the data for such comparisons are collected and made available, the better it is for the harmonious development of transport facilities.

Due to the great war, foreign capital, whereupon so far railway development has been largely dependent, is during the next decades not likely to be available for railway loans to the same extent as before, and China may now be more left to her own resources.

The capital spent on labour, construction and materials and even floating plant for improvement of rivers and canals remains all, with very few exceptions, in the country, while in the case of railways the money spent outside China on foreign imports of bridges, rails, sleepers, locomotives and rolling stock is considerable.

In very many cases the improvement of an existing waterway can be done gradually with small yearly capital outlay, so as to give direct and immediate advantages to both through and local traffic. The large capital expenditure during 5 or 10 years required to complete a longer railway for through traffic is not essential. In the case of China this is an important point in favour of waterway development.

The mere existence of an excellent nucleus of waterways and possibilities of development speak for their rational utilization. Compared with other countries the cost of construction and amortization and interest on capital required for present improvement of waterways will be small, counted per unit of length.

Generally speaking, for construction and improvement of canals, there exists no more favourable ground than the great plain of China, stretching from the Gulf of Pei Chi Li to the Chien Tang River. Further China has her widely spread, large, navigable river systems, which are often cheaper to improve than to build canals, and here lays one of her greatest assets on the transportation field.

The whole history of China is bound up with her rivers and waterways and a continuation of her waterways development would come natural to her and her people and need comparatively little foreign assistance both in construction work and traffic.

This assistance technically, if I leave out the delicate question of administration altogether, need only take the form of investigating and controlling engineers. The Chinese, who with due training and under proper directions, soon serve their apprenticeship, will undoubtedly be able to cope with the work and show their natural ability therefor.

The small costs of establishing loading and unloading facilities along a waterway make its banks at any point a fine site for all kinds of industries and factories. The existence of an efficient waterway-transport service thus stands for decentralization of industrial and factory districts and has a great importance for the social conditions of the country, by avoiding the overcrowded unhealthy conditions of large manufacturing centres. Further the agricultural interests along a waterway derive great benefits from the ease whereby *at any point* certain cheap goods such as stone, sand, timber, agricultural products, etc., can be shipped. In China, the whole industrial development is still in its infancy but it will, as in every country, greatly depend on whether the large producing districts are able to send their products to the consuming centres (for refining industries, re-distribution, export, etc.) at comparatively small cost or not; with other words, on cheap transport for raw products.

The mere enumeration of some of the problems confronting China in the future development of her waterway problem shows how large the task is. The data available, both in topographical, technical, economical, traffic-statistical and other respects, are so scant that reliable conclusions are impossible to arrive at at the present time.

But one thing is certain: If the present policy of all rail and no water development is continued indefinitely, this country may run the risk of not having its primary natural means of transportation properly utilized and other means developed at their expense, which would ultimately mean an indirect but large national loss.

The remarks above made only view the inland waterway problem from the point of view of transport chiefly of raw or refined products for agricultural and industrial interests. Naturally in dealing with the rivers of China there are other and even more important issues involved, such as flood-prevention, drainage irrigation, waterpower, timber floating, etc. etc. Further, part of the traffic on several of China's inland waterways comes under the heading of ocean navigation, which in these cases of course puts another colour on the problem.

Thus it is clear that the general problem of waterways and all that it involves in different fields and activities, has to be approached with a very open mind and on the basis of most careful preliminary studies on many different fields, one of the most important of which undoubtedly is that of transportation.

The relative importance and economic value, as compared with other means of transport, and general character of the inland waterways varies considerably in different countries and the results from one cannot be applied to another.

The first step to ensure the right development of the transport problem in China would therefore be an investigation of the conditions of the waterways—carried on for a certain length of time on broad and comprehensive lines—and collection of the data required to form an opinion on the main inland navigation improvement scheme and possibilities, as a preliminary to the formulation and enactment of a definite government policy in waterway matters.

JAPAN'S BUDGET FOR 1915-16

The General Budget for the Financial Year 1915-16, following in the wake of that for 1914-15 which had failed to pass, was framed with the object of completing the administrative and financial adjustment which had been commenced in the year 1913-14 and of carrying out various urgent plans; but unfortunately, an official report explains, the provisions in it for an increase of two army divisions in Chosen aroused the opposition of the House of Representatives, with the result that the House was dissolved at the end of December, 1914, and the General Budget and the various special account Budgets were rendered ineffective and the Government had to fall back upon the Budget for the preceding year according to the provisions of Art. LXXI of the Constitution.

In the General Budget for 1914-15 which had to be followed in the succeeding year according to the Constitution, the total revenue was put at *yen* 672,195,010 (£68,851,275) and the total expenditure at *yen* 651,139,899 (£66,694,653); but these figures being merely formal standards, the Government, following precedent in the same manner as in the preceding year, framed a sort of self-denying working Budget within the limits of the formal Budget.

Upon adding the amounts given in the working Budget which was framed as above stated and the amounts given in the Supplementary Budget which was passed at the special session (the thirty-sixth session) when the Diet was convened in May, 1915, that is to say practically, according to the Budget to be carried out in 1915-16, the revenue is put in the ordinary section at *yen* 524,348,823 (£53,707,755) and in the extraordinary section at *yen* 96,641,441 (£9,898,744) (the sum to be brought over from the preceding year being put upon comparison with a similar sum brought over in 1914-15 at *yen* 47,948,882 (£4,911,286) according to calculation made in June, 1915, making a total of *yen* 620,990,264 (£63,606,500); and the expenditure stands in the ordinary section at *yen* 402,742,689 (£41,251,940) and in the extraordinary section at *yen* 187,559,241 (£19,211,230), making a total of *yen* 590,301,930 (£60,463,170), and thus leaving a surplus of *yen* 30,688,334 (£3,143,330). In the ordinary sections of revenue and expenditure there is a surplus of *yen* 121,606,134 (£12,455,816).

The following table gives a comparison of the revenues and expenditures of the working budgets of the two years 1914-15 and 1915-16. (By the term Budget in the remaining portion of the present article to be understood the working budget of either of the two years above referred to).

	1915-16	1914-15	Decrease
Revenue	*yen*	*yen*	*yen*
Ordinary	524,348,823	534,182,862	9,834,039
Extraordinary ..	96,641,441	120,132,239	23,490,798
Total.. ..	620,990,264	654,315,101	33,324,837
Expenditure			
Ordinary	402,742,689	415,971,859	13,229,170
Extraordinary ..	187,559,241	207,880,569	20,321,328
Total.. ..	590,301,930	623,852,428	33,550,498

Upon comparing the revenue for 1915-16 with the estimate for the preceding year, we find that in the ordinary section there is an increase of *yen* 6,270,000 (£642,221) in taxes and duties, owing mainly to an increase of *yen* 3,960,000 (£405,613) in income tax and *yen* 1,380,000 (£141,350) in sugar excise. Moreover, by the increase of receipts on account of war and curtailment of expenditure in consequence of administrative adjustment, the profits of the various Government works and factories increased by *yen* 1,150,000 (£117,792); there was an increase of *yen* 9,770,000 (£1,000,717) in the transfer of the Monopoly Bureau profit by recovery of the amount of decrease temporarily caused in the preceding year through a revision of the financial year relative to the postponement of payment of prices for monopoly goods; and there was also an increase of *yen* 6,850,000 (£701,629) through an increase of goods sold and delivered; thus, the receipts from Government enterprise and State property increased by *yen* 18,160,000 (£1,860,084). There was also an increase of *yen* 2,590,000 (£265,287) in the transfers from the special accounts for the Governments-General of Chosen and Taiwan; thus, the total increase came up to *yen* 27,040,000 (£2,769,640). But, on the other hand, in consequence of the adjustment of the tax system which had been decided upon in the preceding financial year, the reduction of tax rates caused a decrease of *yen* 1,930,000 (£197,685) in land tax, *yen* 7,450,000

(£763,085) in business tax, *yen* 1,250,000 (£128,034) in succession tax, and *yen* 30,000 (£3,073) in bourse tax, making a total decrease of *yen* 10,670,000 (£1,092,902). Moreover, taxes and duties of all kinds were seriously affected by the great war in Europe; thus there was, among others, a decrease of *yen* 17,870,000 (£1,830,380) in Customs duties, *yen* 5,630,000 (£576,667) in textiles consumption tax, and *yen* 1,350,000 (£138,277) in bourse tax, making a total decrease of *yen* 25,830,000 (£2,645,703); and decreases in the stamp receipts, miscellaneous receipts, and transfers from deposits special account brought up this total to *yen* 36,870,000 (£3,776,503), making the net decrease in the ordinary section *yen* 9,830,000 (£1,006,863).

Upon comparing the expenditure for 1915-16 with the estimates for the preceding year, we find that in the ordinary section, with the progress of the already-fixed programme, there was an increase of *yen* 2,990,000 (£306,258) in the new warships expenditure, annuities and pensions increased by *yen* 2,670,000 (£273,482), and the second reserve fund by *yen* 2,000,000 (£204,855), and these with the sum to be transferred to the Government-General of Taiwan and expenses required for the stationing of two army divisions in Chosen brought up the total increase to *yen* 11,410,000 (£1,168,698). On the other hand, the transfer to the sinking fund decreased by *yen* 19,200,000 (£1,966,609) on account of the decrease of the amount to be devoted to the redemption of the national debt in consequence of the revision of the Law concerning the Sinking Fund Special Account; there was also a decrease of *yen* 3,280,000 (£335,962) in consequence of administrative adjustment; and these, together with reductions in provisions expenditures under the army military expenses section and various repayments, brought the total decrease to *yen* 24,640,000 (£2,523,814), which made the net decrease of the ordinary section *yen* 13,220,000 (£1,354,092). In the extraordinary section, there was an increase of *yen* 20,000,000 (£2,048,551) in the loans to the Imperial Railways special account and of *yen* 8,630,000 (£883,950) in the loans to the Chosen undertakings fund; the warships construction expenses increased by *yen* 11,830,000 (£1,211,718), and these, with the war reserve for 1914, increased amount of transfers to the waterways improvement fund special account, increase of the Monopoly Bureau permanent working expenses fund, Chosen divisions construction and equipment expenses, and additional expenses for the extension of the Steel Foundry, made the total increase *yen* 59,540,000 (£6,098,535); but on the other hand, there was a decrease of *yen* 20,820,000 (£2,132,541) in the continuing expenditures on account of the reduction of the already-fixed annual amounts and postponement of undertakings in consequence of administrative adjustment; the administrative adjustment also reduced miscellaneous expenditures by *yen* 7,690,000 (£787,668); transfers to the military expenses special account were reduced by *yen* 34,680,000 (£3,552,187); and these, with reductions in transfers to the Chosen Government-General special account, and loans for the repair of damage done by natural calamities and relief of localities suffering from poor crops, made the total decrease *yen* 79,860,000 (£8,179,863), giving the net decrease in the extraordinary section as *yen* 20,320,000 (£2,081,327), which made the decrease of the total expenditure *yen* 33,550,000 (£3,436,444).

Such is the general account of the revenue and expenditure estimates to be carried out in the Financial Year 1915-16. It had been intended in the Budget for the year to carry into effect the financial programme which had been announced when the present Cabinet was formed and to meet the urgent demands of the State; but unfortunately, in the situation created by the great war, not only was the defrayment of enormous sums required to meet the military expenses and other expenses connected with the war, but the same situation caused a great reduction in the revenue, with the result that there were no means of improving the relations between the receipts and disbursements of the National Treasury and forming new plans for the reduction of taxes and duties with resources created by the surplus in the National Treasury as had been at first intended; and further, in regard to other expenditures, plans could not be carried into effect on account of the dissolution of the House of Representatives. It was a cause of deep regret to the Government; but in regard to the most urgent of these measures, a Supplementary Budget was passed in the thirty-sixth session of the Diet and thus the Government was enabled to carry them into effect. The following were the most important among the measures so passed:—

With respect to the national defence expenditure which had for many years been the subject of heated political discussion, the expenses for the purpose were calculated according to the programme of military and naval preparations which had been decided upon after investigation by the National Defence Council. Thus, the warships construction expenditure is to include the expenses required for completing the three battleships, the construction of which had been commenced in 1913 and the expenses required for building eight torpedo-destroyers and two submarines; the amount is *yen* 90,350,000 (£9,254,328), in addition to the already-fixed continuing expenditures; the total sum is to be spread over four financial years from 1915-16 to 1918-19, when they are expected to be completed, and the additional amount required in 1915-16 was *yen* 22,130,000 (£2,266,721); but as of the amounts already fixed, *yen* 10,300,000 (£1,055,004) was available as it had not been put to use, the actual amount required additionally in that year was *yen* 11,830,000 (£1,211,718). Further, as regards the expenditure required for the permanent stationing of two army divisions in Chosen, in addition to *yen* 240,000 (£24,583) for ordinary military expenses, the expenses for structures and equipment were fixed at *yen* 11,980,000 (£1,227,082), to be spread over seven financial years from 1915-16 to 1921-22, the amount required in the first named year being *yen* 470,000 (£48,141).

For expenditures for the extension of the Steel Foundry there was added to the already-fixed amount the sum of *yen* 3,180,000 (£335,720) as expenses required for the establishment of a workshop for the production of thick plates; it is to be completed in three years from 1915-16 to 1917-18, the additional amount to be disbursed in the first named year being *yen* 112,500 (£11,523). To the already-fixed expenditures for 1915-16 the sum of *yen* 570,800 (£58,466) as expenses for equipment for the manufacture of benzol and toluol was added.

As regards the national debt, although the Government had hitherto followed the policy of not resorting to public or temporary loans for sources of revenue of the general account, it had resorted to them for expenditures for the construction and improvement of State railways, undertakings in Chosen, and waterways improvement fund; but in the Budget for 1915-16 these expenditures were to be defrayed from money obtained by the reduction of the amount to be devoted to the redemption of the national debt, surplus of the Nationals Treasury, and other general revenue, and in this manner it is intended to strengthen the Financial basis and maintain its credit. At the same time the Government amended the provision in the Law concerning the Sinking Fund Account that the amount of annual transfer from the general account for the redemption of the national loans raised for the payment of the expenditures connected with the war with Russia must not be less than *yen* 110,000,000 (£11,267,029), and decided that from the Financial Year 1915-16 the amount to be annually redeemed must not be less than 116/10,000 of the total amount of the national debt at the beginning of the preceding financial year, and the amount of redemption every year must not fall below *yen* 30,000,000 (£3,072,826). Thus, the amount of the national debt to be redeemed was put in the Budget for 1915-16 at *yen* 30,000,000 (£3,073,826), a decrease of *yen* 20,000,000 (£2,048,551) on the annual amount up to that time. Further, the largest amount of Treasury Bills afloat in 1915-16 was *yen* 50,000,000 (£5,121,377) as in the preceding year.

In fine, as regards the working Budget for 1915-16, the war caused a very great decrease of revenue to the National Treasury and, moreover, not only were the various laws relative to the reduction of taxes which had been established and promulgated in the preceding year brought into force, but as the various expenditures connected with the war were considered important, several urgent and indispensable measures were carried out by drastic curtailment of expenses in both the general and special accounts and postponement of many undertakings. Especially, the solution of the question of the increase of army divisions and construction of warships which had long agitated the political world of Japan, will, it is believed, have a very beneficial effect upon political administration in the future.

Typical View of Hardwood Forest

Philippine Forest Trees—Island of Negros

PHILIPPINE WOODS IN THE CHINA MARKET

[By E. E. Schneider, Wood Expert, Philippine Bureau of Forestry]

Even before the Spanish conquest of the Philippines, there was some traffic in wood between the islands and China but this was probably limited to very small quantities of some of the most valuable cabinet woods, such as Ebony and Camagon, Narra or Tindalo, and perhaps also some of the very strong and durable woods used in ship building. During the long Spanish regime this traffic increased considerably, especially as regards the latter class of woods. Among the species oftenest mentioned as being exported to China were Aranga, Ipil, Molave, Dungon and Yakal. These exports ceased almost entirely at the outbreak, in 1896, of the revolution against the Spanish power and it was only some years after the establishment of the American government in the islands that they began again.

At first, the exports of wood to China were of the same character as during the latter part of the past century, that is, they consisted mainly of those shipbuilding timbers known since ancient times for their strength and durability, with a smaller proportion of cabinet woods. But meanwhile, two great changes had taken place. Even before the revolution, most of the very high grade construction timbers had been becoming scarcer and higher priced. After peace was established under the present government, the local demand for these woods naturally increased, not only to repair the damages caused by neglect and active destruction during the war, but also for many new undertakings. On the other hand, there began about ten years ago the exploitation on a large scale of the great dipterocarp forests, with the result that there has become available a supply of the very abundant woods of the Apitong and Lauan groups greater than was ever before found in the markets. Practically the only wood whose status has not changed much is Yakal. This, as well as the other high grade construction timbers, had been growing scarcer, but the opening of new forests, while contributing very little to the supply of Molave, Ipil or Dungon, did increase very much the supply of Yakal, so that the latter is now available in as great quantities and perhaps even greater, than during the latter years of the past century.

The result of these changes is that the supply of the very high grade woods except Yakal will always be limited, while there will be available for export great quantities of the Apitongs and Lauans, of Yakal, and of a few other woods, Pagatpat and Lumbayau being the most notable among those that do not belong to the Dipterocarp or Lauan family.

A comparison between these Philippine export timbers and the other foreign woods now used in China is perhaps best introduced by showing the mechanical properties of Philippine woods and those of some of the best known American and

Pineclad Mountains of Island of Luzon

Mangrove Swamp Showing Larger Trees of Pagatpat

Bornean timbers. The following figures are taken from "Mechanical tests, Properties, and Uses of Thirty-four Philippine Woods" by Rolland Gardner, Bull. No. 4, Bureau of Forestry, Manila, 1907.

Name of Wood.	Country of Origin.	Avg. modulus of rupture (lbs. per sq. inch)	Avg. modulus of elasticity (1000 lbs. per sq. inch)	Average specific gravity of dry wood.
Oregon Pine	U.S.	7900	1680	0.510
Longleaf Pine	U.S.	10900	1890	0.610
Cal. Redwood	„ „	9110	1320	0.445
Borneo Yakal	Borneo	12395	2027	0.755
Kruen (Borneo Apitong)	„	8700	1604	0.653
Seraiah mira (Red Lauan)	„	7450	1299	0.614
Seraiah Puteh (White Lauan)	„	9390	1554	0.547
Yakal	Phil. Is.	15690	2583	0.843
Guijo	„ „	15150	2158	0.708
Apitong	„ „	11620	2144	0.645
White Lauan	„ „	9760	1653	0.446
Red Lauan *	„ „	7100	1201	0.406

Yakal is hard, heavy, tough, difficult to split, and very durable; even termites ("white ants") attack it only very slowly; the only destructive agency it does not resist well is the teredo. It is yellowish to light grayish brown, turning to dark brown on exposure, of fine texture and with crossed grain.

Yakal is one of the most valuable timbers in the Philippines for high grade construction, being especially useful for long beams in ship, wharf and bridge building and mill, factory and house construction on account of its great strength and stiffness. It is also used in greater quantities than any other one wood for railroad ties. It is specially recommended for skating rink and ball room floors, where a dense and fine wood is required, and floors subject to very rough usage, such as wharf, bridge and factory floors.

Prices: Yakal has been quoted by various companies during 1915 at the following prices; it must be understood that these are for ordinary dimensions and current grades: F.O.B. at mills (Mindanao) $30.00 to $45.00, U.S. Cur. F.O.B. Manila, $45.00 to $50.00. Railroad ties sell in Manila at from $0.75 to $0.875 each, as compared with Japanese oak ties in China (Hankow) at $0.675. All these prices seem high as compared with those of American and Japanese woods, but it must be remembered that in strength and durability Yakal is equal or superior to the best American and European oaks.

Guijo. Guijo is only slightly lighter, softer, and less strong than Yakal, but much less durable when exposed to weather or in contact with the ground; it is of fine texture, somewhat cross grained and ashy gray or dull reddish brown in color. For all interior structural parts, or where thoroughly protected by painting, it ranks high among Philippine construction timbers. It is also much used in ship building and especially for keels, ribs, gunnels, etc., of large lighters and sampans. Being tough and difficult to split, but lighter and cheaper than Yakal, it is much used for wagon and cart-beds, axles, shafts, felloes, spokes, bolsters, reaches, etc.; more Guijo is used for heavy vehicles than any other one wood.

Prices.—F.O.B. at mills (Mindanao), $27.50 to $35.00 per M.; F.O.B. Manila, $35.00 to $55.00 per M.

Apitong.—Apitong in mechanical properties is similar to Guijo, but is of somewhat coarser texture and less tough; its color ranges from light red to dark brown, the greater bulk of the lumber in the market being of a fairly uniform light reddish brown. Apitong is practically identical with the Kruen of Borneo or Krewing of the Federated Malay States. Like Guijo, Apitong is not durable when in contact with the ground or otherwise exposed to very severe conditions. Though somewhat resinous, it is easier to work than Yakal and Guijo.

Apitong is used in Manila in greater quantities than any other one wood in ordinary construction, for posts above stumps, beams, joists, rafters, studding, flooring, etc.; it is also used for sheathing and ceiling, but for this purpose Lauan is employed more than Apitong. It makes a hard, durable and handsome floor when finished with wax.

For railroad ties Apitong is not recommended for tropical climates or where termites are abundant and destructive, but in cold, dry regions it may be expected to give fair service. Several shipments of Apitong have been made to India for railroad ties and for railroad car construction, but no reports are yet available as to the service it has given.

Prices. F.O.B. at mills, $20.00 to $25.00; F.O.B. Manila, $30.00 to $35.00.

The LAUANS. Under this general name are classed together all the light, soft woods of this family known in the Malayan region as "Seraiah" and "Meranti." They range from pale yellowish, reddish or brownish white to dark reddish brown. In regions where any one well-known species is abundant, this will be sold separately and under its own name. Where a number of species are found in very mixed forests, they are felled and sawn indiscriminately and roughly sorted in the yard into red and white, all the bright red to dark red lumber going into the red pile and all those having only a reddish or light brownish tinge into the white.

All the Lauans are comparatively soft and light, and very easy to work. They are almost always distinctly cross-grained, so that, when quarter sawn, they show a conspicuous and often very regular ribbon grain like that of the mahoganies. They all take stains very well, so that the lighter colored ones especially can be stained to any desired shade of gray, yellow, red or brown. They shrink considerably in seasoning, but are not specially liable to warping and, when once seasoned, they work very little.

The Lauans are used in the Philippines for all purposes from the most ordinary rough work to interior finish and highly finished furniture. The only uses from which they are excluded are those requiring either great strength or unusual durability. Red Lauan and Tangile are commonly finished either natural or with stains and fillers that heighten their natural reddish color; Almon, Kalunti and White Lauan are more rarely finished in natural colors. In cheap furniture and clothes chests they are often finished with a yellowish brown varnish similar to that used on Teak furniture in Hongkong, but more commonly a deep, brilliant red varnish is used. In practically all medium grade and cheap houses in Manila both siding and interior sheathing, partitions and ceilings are made of Lauan. This sort of work is almost invariably painted. The Lauans take and hold oil paint very well and have one advantage in appearance over the pines in that they rarely have knots and pitch seams from which the pitch will come through the paint. Not only are knots rare, but such a thing as a loose knot, that can drop out of a board, is almost unknown. Rotten knots, of course, may occur, but sound knots have their fibers so interlaced with those of the surrounding wood that they scarcely constitute an element of weakness.

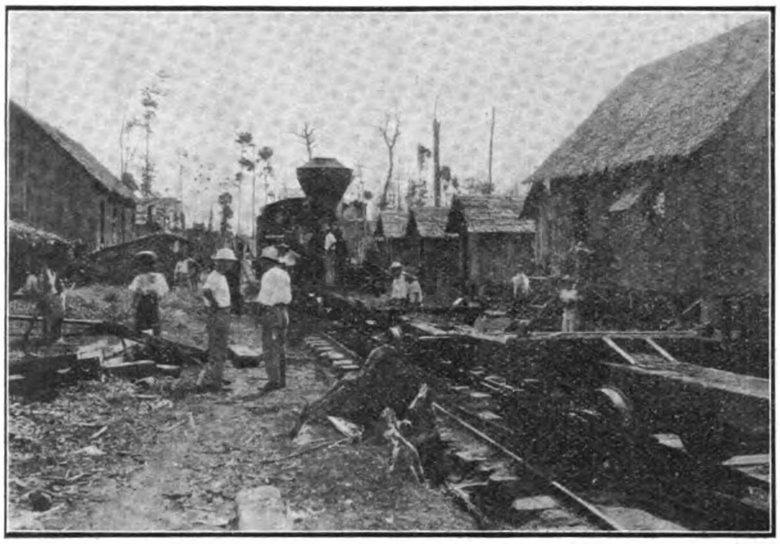
The following are the best known and most abundant species of the Lauan group.

ALMON. Pale reddish, but fading out on exposure to air to light yellow. Few mills separate it from the other light colored Lauans. Where kept separate, sells at about $22.50 F.O.B. at mill or $30.00 F.O.B. Manila.

In mechanical properties and color Almon is very close to White Lauan. When stained, they are practically indistinguishable.

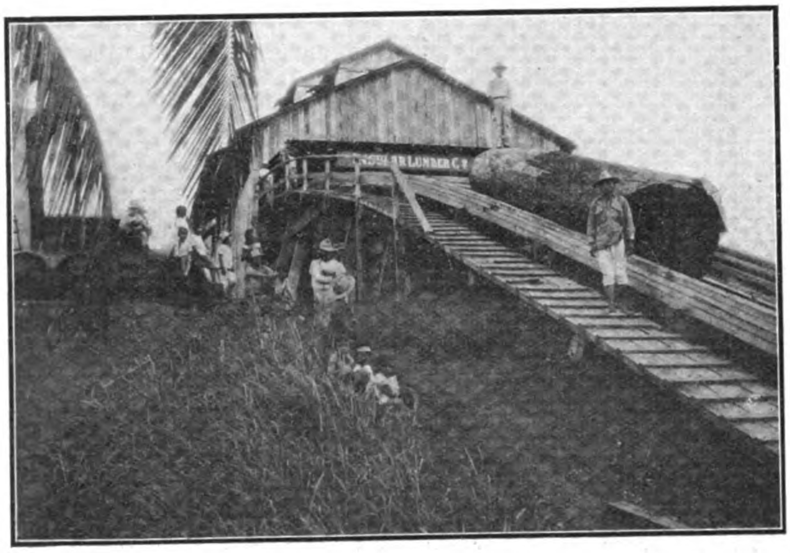
BAGTIKAN. Slightly harder and heavier than average Almon and White Lauan. Wood from young trees light colored, but in large trees of a pale, but distinct brown tint. Rarely sold separately under its own name, being generally mixed either with Almon or with White Lauan; some of the darkest boards are

* The tests of Red Lauan were made only on beams with a very high average moisture content (65 to 84 per cent); for seasoned lumber, the figures would be considerably higher, probably approaching those for White Lauan.

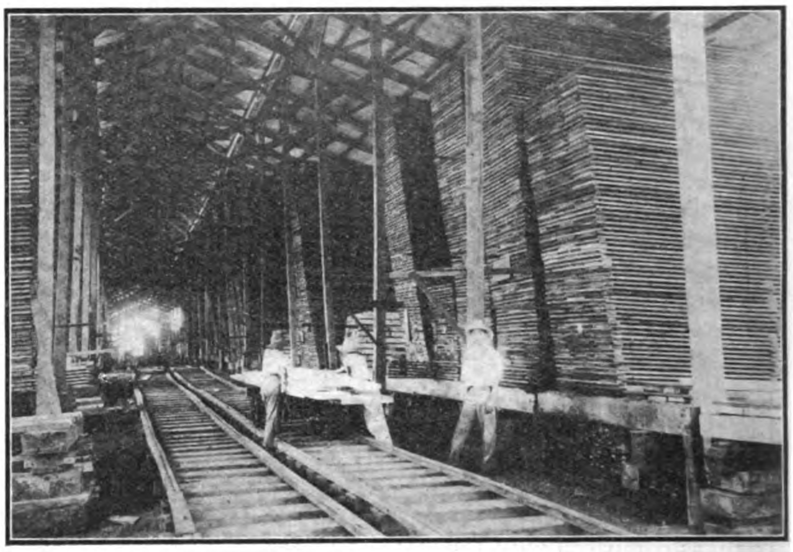


Shea Logging Engine Starting for the Forest

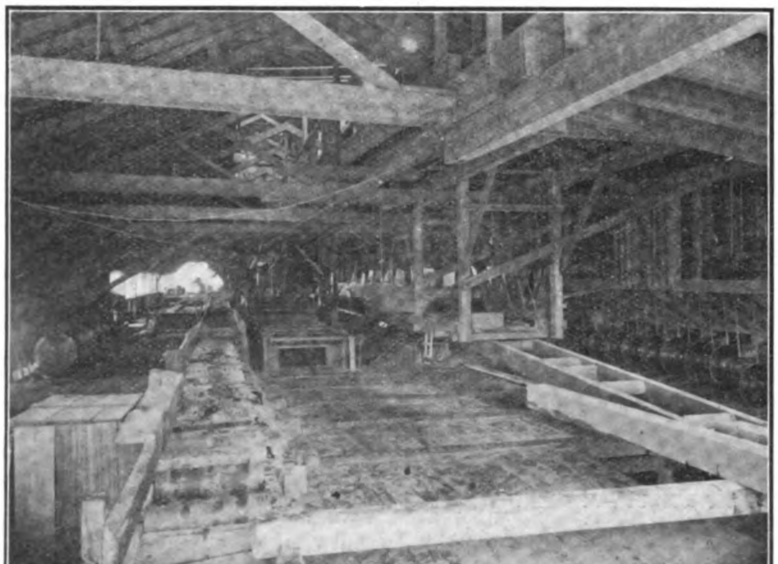
Logs Floated Down River About to Enter Mill



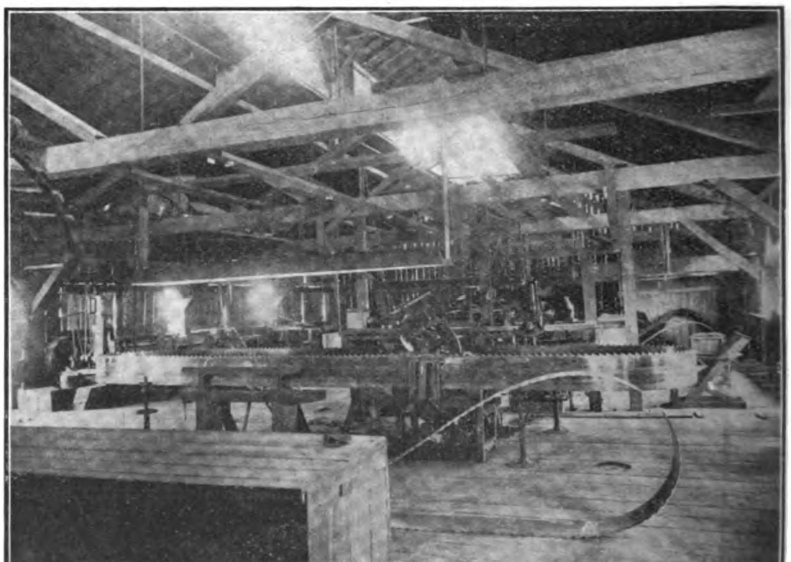
Hauling Logs from River into Mill



Lumber Sheds with Export Stock Piled for Seasoning



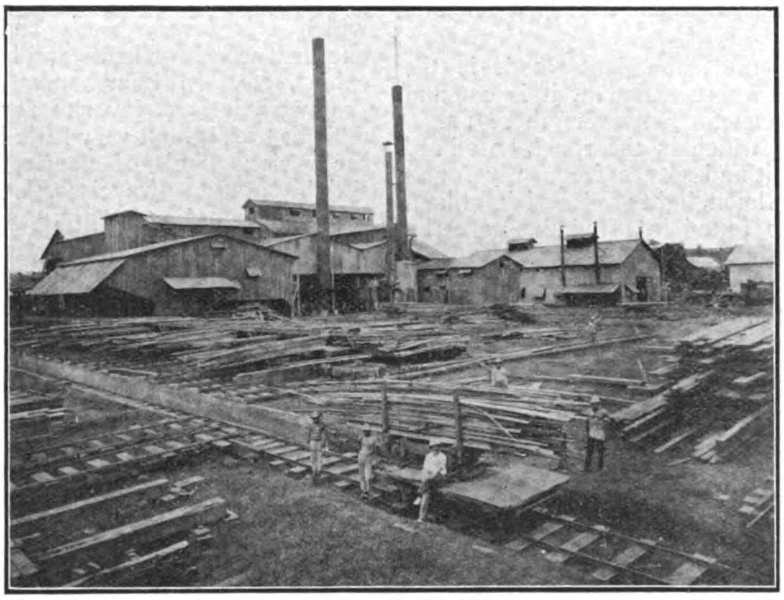
Second Floor of Mill Showing Trimming Saws



Saw Filing Room of Insular Lumber Co.'s Mill

occasionally found in lots of Red Lauan. Unless intended for natural finish where even color is desired, Bagtikan is not different enough in mechanical properties to be separated from the other Lauans.

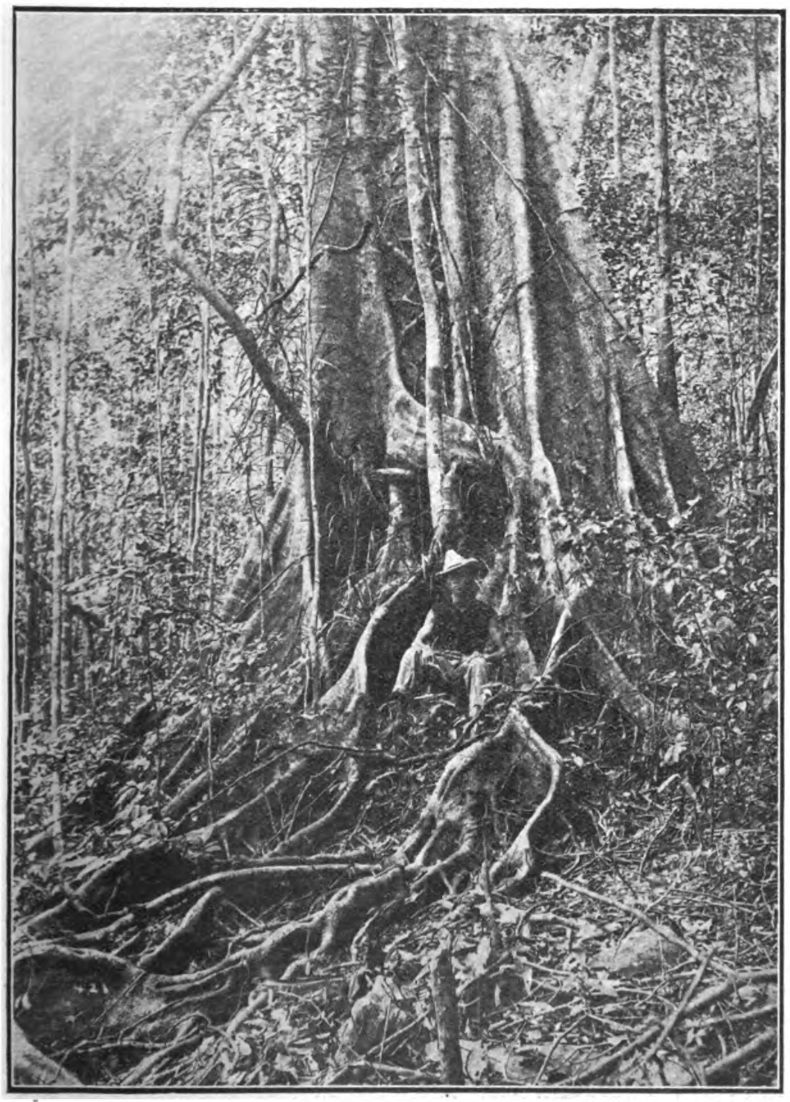
RED LAUAN. This is the most brilliantly colored wood of the family. It ranges from bright pale red to dark reddish brown, but the great bulk of the lumber on the market is of a very uniform red color about as dark as average cigar box cedar. Owing partly to its very regularly cross-grained structure and partly to its color, the ribbon grain in Red Lauan is also more conspicuous than in most of the other Lauans. It is for this reason as well as on account of its great abundance, that Red Lauan has been exported to the United States more than any other wood under the trade name of "Philippine Mahogany," though of course it is not a mahogany at all. For the same reason it has been more used in Manila for interior trim and highly finished furniture than all other cheap and medium priced woods put together. Finished with a transparent varnish, the natural reddish color changes to a rich reddish golden brown somewhat similar to that of a dark golden oak finish. A dark brown filler used before varnishing increases this effect. If a mahogany red finish is desired, a light red filler and a very slight stain will give it a permanent rich red color as brilliant as that of cherry or mahogany.



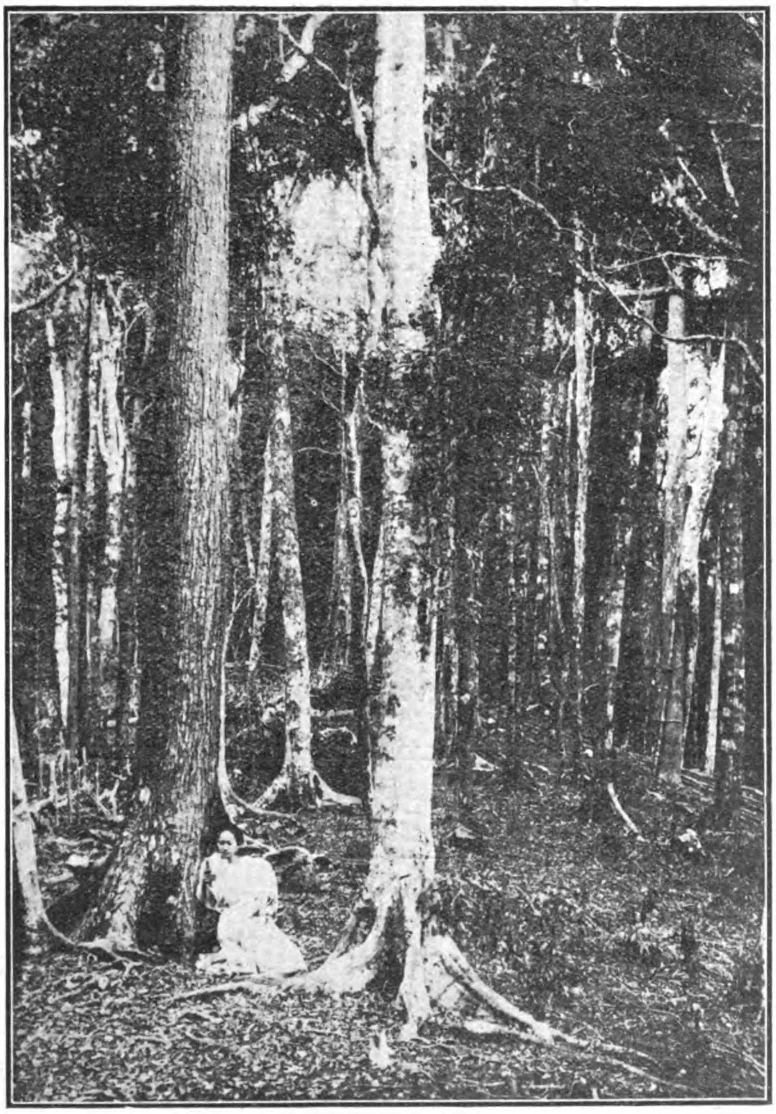
Insular Lumber Co.'s Mill—Sorting and Distributing Tracks

Prices. F.O.B. at mills, $22.50 to $25.00; F.O.B. Manila, $25.00 to $40.00.

TANGILE. This is the heaviest, hardest and finest-grained of all the Lauans. It is rather variable in color; in some regions it is of the bright, glossy red found in the wood of young trees of Red Lauan, while in others it is much darker, but the darker varieties are rather golden than reddish brown. Like Red Lauan, Tangile has a conspicuous ribbon grain. Being denser than the other Lauans, Tangile can be filled and polished with less expense of labor and materials. Also on account of its slightly greater hardness and density, it resists nicking or denting better, which is an advantage for furniture and parts of interior finish subject to occasional knocks.



Philippine Forest Giant Showing Buttressed Base



Forest with Undergrowth Cut Away

Prices. F.O.B. Manila, $30.00 to $35.00 per M.

WHITE LAUAN. Light, soft, but difficult to split and fairly flexible and tough; grayish white with sometimes a light brownish tinge, under transparent varnish taking a distinct yellowish tint.

White Lauan is one of the most abundant woods in the Philippines and in most regions where abundant it is cut and sold alone and under its own name. However, there are a number of less abundant species which in the rough board are practically indistinguishable from it and so are frequently found mixed in lots of White Lauan. Almon, light grades of Bagtikan, and Kalunti (a very white species found in Mindanao) are the ones most commonly confused with it.

White Lauan is used more extensively in Manila than any other one wood for all purposes where cheapness and ease of working are of more importance than strength and great durability. Many contractors and builders prefer it to Oregon Pine for concrete forms on account of its toughness and difficulty of splitting. While Oregon Pine can generally be used only once or twice for this purpose, White Lauan will stand using three or four times.

On account of its very light color, it can be stained to any shade desired of gray or yellow to deep reds and browns.

Though somewhat heavier than the lighter pines, it makes excellent packing cases, which will stand much rougher usage than the average pine box.

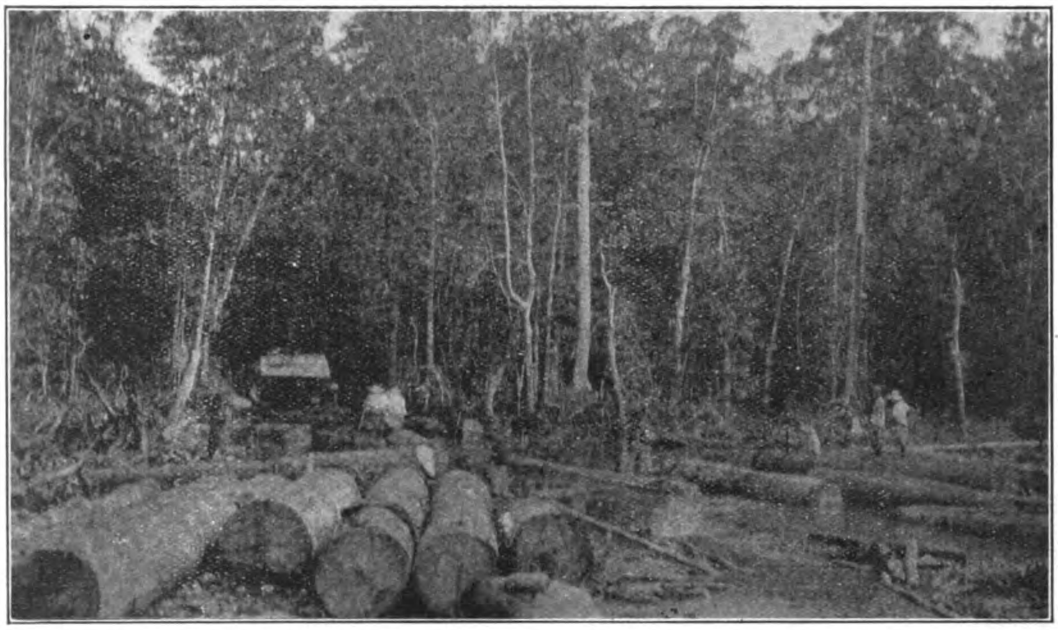
Prices. F.O.B. at mills, $17.00 to $25.00; F.O.B., Manila, $20.00 to $30.00.

Beside the above, which are all woods of the Dipterocarp or Lauan family, two others, one little and the other not at all known until the recent development of the lumber business in Mindanao, have come into the markets and promise to furnish a steady supply for a good many years to come:

LUMBAYAO. A wood very similar to Red Lauan in general appearance. It has a richer red color and a more striking figure. It is a little harder and heavier and considerably tougher than Red Lauan and also seems to be somewhat more resistant to decay and insect attacks. Its chief use in Manila is for flooring, sheathing and ceiling, doors and windows, and general inside finish. A considerable amount of small dimension stuff is also used for joists, studding and rafters. The street car company has used it for interior finish in electric cars, for which it is a very pretty and durable material. It is also an excellent wood for boats and launches, for ships' interiors, deck cabins, etc. In Zamboanga and Basilan, where it is chiefly produced, it is a favorite for boxes, being tougher and more difficult to split, but very little heavier than the Lauans. Among the various kinds of flooring laid in the Philippine Forestry Exhibit at San Francisco, Lumbayao, on account of its lively color and conspicuous grain, attracted more attention than any other wood.

Prices. F.O.B. at mills, $24.00 to $30.00.

PAGATPAT. This is a hard, heavy wood of very even and straight grain and fine texture, grayish brown to dark chocolate brown in color. It is strong and stiff and durable, being very rarely attacked by insects and having especially a good reputation for durability in wet situations, though not considered quite equal to Molave, Dungon and Ipil.



Logs of Pagatpat Ready for Shipment to China to be used in Construction of the Mausoleum of the Emperor Kuang Hsu

The chief uses of Pagatpat in the Philippines are for ship, wharf and bridge building, general strong construction, flooring and interior finish.

Pagatpat is easy to work and to finish. Under varnish it takes a very dark brown color. It would undoubtedly take black stains very easily.

The trees are not as large as the largest species of the Lauan family, but still very large timbers can be obtained. The immense timbers furnished for the emperor's mausoleum a few years ago were of Pagatpat from Mindanao.

Prices. F.O.B. at mills, $25.00 to $37.50.

[Supplementary to the article on the same subject, published in the Far Eastern Review of August, 1915, by Forsythe Sherfesee, then Director of the Philippine Bureau of Forestry and now Adviser in Forestry and Co-Director of the Chinese Forest Service. Panels representing the typical natural appearance of all of the woods discussed in this article can be seen in the offices of the American Commercial Attache, Peking—Ed.]

SUGAR CENTRAL MAY BE DEFERRED

The Philippine Government may be compelled to abandon for the present its plans for the construction of a central sugar mill at Isabela for handling the 1917-1918 cane crop. It is stated that the great increase in ocean freight rates and the increased price of metals of all descriptions will make a central plant at this time cost approximately P3,000,000, while the board has only an appropriation of P2,000,000 at its disposal. In addition to this there appears to be no firm willing to bid on the project if a clause is contained therein obligating the firm to guarantee completion of the mill at any given date, and from the government's point of view this is indispensable.

It is pointed out that to acquire a mill at the present inflated price of materials and abnormal freight rates will mean, in addition to the greatly increased investment of the government, that after war prices have dropped and freight rates have returned to normal, the value of the mill will depreciate in like manner, and that the property itself will be then worth considerably less than it cost to the government.

BRITISH NORTH BORNEO

[BY AMERICAN CONSUL GEORGE M. HANSON, SANDAKAN]

The State of British North Borneo is governed by the British North Borneo Co., a chartered company, the only one remaining under the British flag, with headquarters in London. The government is practically the same as that instituted by the British in the government of oriental colonies. The State is under British protection. There is a governor, who is appointed by the company with the approval of the British Secretary of State, and various other executive officers. The country is divided into subdivisions, the head of each being a resident. All appointments to positions are made by the Court of Directors in London, and after 25 years the officeholder is entitled to a pension of half salary for life.

Borneo is a vast island of which little is known. Politically it is divided into four districts—Dutch Borneo, comprising about seven-tenths of the area; Sarawak and Brunei, nearly two-tenths; and British North Borneo, a little more than one-tenth. The old Sultanate of Brunei, on the northwest coast, from which the island derived its name, is now an independent British protectorate. It lies between Sarawak and British North Borneo. The island of Labuan, off the west coast of British North Borneo, is a dependency of the Straits Settlements, and its affairs are administered from Singapore. The other islands that fringe the northeast coast belong to British North Borneo. The company still pays tribute to both the Sultan of Brunei and the Sultan of Sulu. The latter lives in Jolo, in the Province of Sulu, which comprises the islands of the southern Philippines. The east coast of Borneo was formerly included in the Sultanate of Sulu.

MR. GEORGE M. HANSON

Population of British North Borneo

The population of British North Borneo has been estimated at 500,000, but that figure is but a guess, as a large part of the interior has never been explored and no one has any idea of the number of Dusuns and Dyaks who live there. The known population is estimated at about 200,000, which includes the whites, less than 400; the Chinese, Japanese, and Hindoos, about 30,000; and the native Malays of the coast towns and island villages. The only means of transportation anywhere in Borneo is by boat, and the back country away from the rivers has never been traversed by white people. The writer is told that within 20 miles of Sandakan are natives who have never seen a white man and who live by the spear and the blow-pipe the same as their forebears of the tenth century. Their villages are hemmed in by mountains and jungle and there is no communication except when some members of a tribe go on a head hunting trip. These natives are for the most part of the lowest, especially in their manner of living. Their courage, however, is undoubted, and they make good material for any kind of police work. The inhabitants of the island and river towns are quite different. They show the effect of white occupation for between 30 and 40 years.

DYAK MAN AND WIFE IN GALA DRESS

Civilization has stamped Borneo here and there along the coast whenever good anchorage could be found, and a number of settlements have been located a hundred miles or more apart. To these settlements have come the Chinese in great numbers and, in lesser proportions, Japanese and Hindoos. The Chinese as a rule come to stay, and many have taken wives from among the native Malays. The result is a strong Chinese strain in the population in all the towns from Sarawak around the north and east coasts to Dutch Borneo. Later followed the artisans and gardeners from Canton and Hongkong, and when rubber cultivation was started coolies were brought over in great numbers. So that Sandakan, which has a population of about 10,000, is a Chinese town. The business men generally, contractors, artisans of all kinds, skilled workmen, and clerks, are practically all Chinese. The white population is small. Oriental labor is so cheap that no white man is employed, except in some capacity of leadership or head of a department. In subordinate positions, such as accountants, chief clerks, etc., are found Hindoos and Eurasians.

Wild Animals Numerous

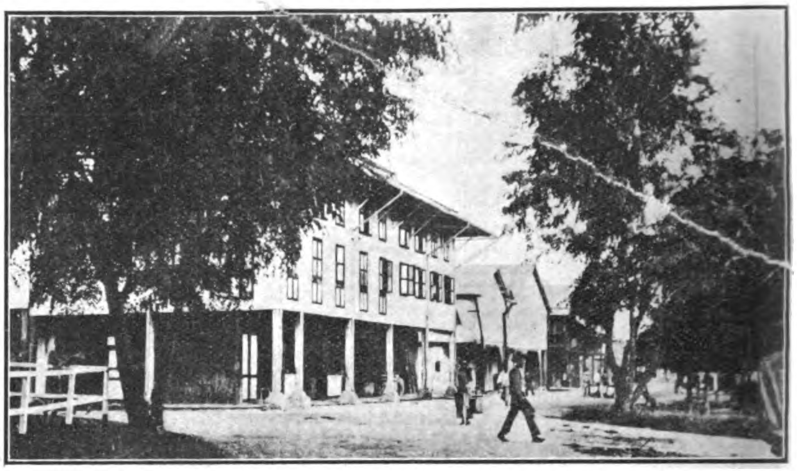
A peculiar feature of Borneo is that it is practically an immense game preserve. The white inhabitants are Government officials, planters, and businessmen and have neither time nor inclination to do any hunting. The result is that the game with which the country abounds is rarely disturbed. Elephants and rhinoceroses are so plentiful that they are a nuisance to rubber and coconut estates by destroying young trees. The telegraph line across the country is out of commission a third of the time because the elephants rub against the posts and push them down. Two kinds of wild buffalo are found and many kinds of deer. As in all tropical countries, wild pig is everywhere. Many are killed every year in and around Sandakan. Crocodiles are numerous near the mouths of rivers and snakes are plentiful. The most common are the python, sometimes 25 to 30 feet long, and the cobra. The latter is venomous, as is also the swamp snake and the rainbow-colored bamboo snake. The carniverous animals are represented by the honey bear, the black panther, and a small tiger. The black scorpion, from 6 to 10 inches long and broad in proportion, is seen occasionally. Iguanas are common, as are also anteaters, sloths, and armadillos. Orang-utans grow to a height of 4 feet 6 inches and are husky. An export duty of $2.77 each has been put on Orang-utans, dead or alive.

Industries and Products of British North Borneo

The industries of British North Borneo are divided into two parts, or three, if manufacturing may be included. These are: (1) Cultivation of tropical products, such as tobacco, coconuts, pepper, and rubber; (2)

TAPPING A RUBBER TREE

AMERICAN CONSULATE, SANDAKAN



SCENE ON THE BUND, SANDAKAN

gathering jungle and forest products, including timber and animal products.

Manufacturing is limited to the making of copra and cutch, the latter a dye and the product of the mangrove tree. Small boats and lighters for local use are built by the China-Borneo Co. and the North Borneo Trading Co. A small factory in Sandakan puts up aerated waters and manufactures enough ice for local consumption and for supplying ships. A small amount of coal is mined.

Tobacco and Rubber Estates

In the cultivation of tropical products tobacco has led for several years, closely followed by rubber. The tobacco estates, however, have been gradually reduced in number each year, while the production of rubber has been increasing, so it is only a matter of time until rubber will take first place. No less than 20 rubber estates, with an acreage of 26,360 and capital of $11,970,000 are under cultivation, 12 of which are producing. Within two or three years all estates will be exporting crude rubber and in five years all the trees that have been set out on all estates will be ready for tapping. The total rubber production, that is, cultivated rubber, amounted in 1914 to 1,373,000 pounds. Considering the loss of the entire continental market, the price has kept up well, and practically every estate now producing will show a profit.

Only six tobacco estates (capital, $1,265,900; acreage, 12,220) raised a crop for export. The tobacco growers for several years have been complaining of the uncertainties of tobacco cultivation owing to the absence of rain at the time it is particularly needed. That is the reason tobacco cultivation is not growing in favor. Both rubber and tobacco growers are inclined to the opinion that if their estates were planted in coconut trees the output would be more profitable. The coconut crop is a natural one which rarely fails and the trees require little attention. There is always a ready sale for copra and coconut oils at prices that guarantee a splendid interest on the capital invested.

Jungle and Forest Products

The gathering of jungle produce is the one thriving business in Borneo. Outside of the timber trade, which is carried on regularly with Hongkong at profitable figures, the jungle and forest products range from armadillo skins to birds' nests. The latter are found in great numbers in the dark recesses of the immense caves which are found all through the mountainous country along the east coast. These nests are built or formed of a sort of gelatin, or masticated food, by a kind of swallow, and vary in value according to color and quality. The pure-white nests are the most valuable; the darker ones are cheaper and less palatable. Hongkong is the great market for birds' nests, where they enter into the food supplies of the wealthier Chinese.

An important jungle product is rattan. It is plentiful all over British North Borneo, and the exports for 1914 were valued at $58,667. There are at least three different kinds, and the price varies accordingly. The cheaper kinds are used for making the blinds and mats so common in tropical buildings, while the better kinds are made into furniture, or used for whip handles, walking sticks, etc. The exports go to Singapore and Hongkong.

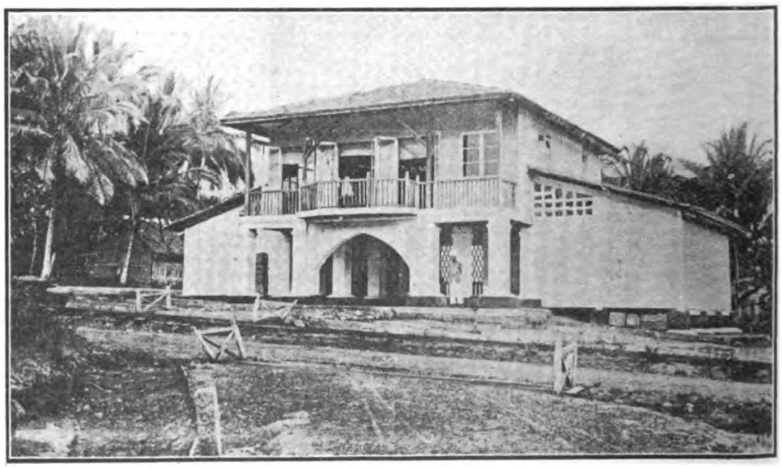
Other jungle products include camphor, dammar and various other kinds of gums and resins, including gum copal, beeswax, guttapercha, india rubber, fruits, etc. The supply of jungle produce could be vastly increased if the demand justified it. The business is handled by Chinese traders who arrange with the native Malays to search the jungle and bring in everything salable. These Malays, however, are naturally indifferent to work of any kind and, besides, are very superstitious. For instance, when on a produce-gathering expedition, if a certain kind of bird flies across the trail ahead of the party, no work can be done that day; if a snake is seen and not killed, the party must return home for the day; if the cry of a certain bird is heard on the right of the trail, it is a warning that no work must be done for two days, etc. But the amount of practically all kinds of jungle produce is so great that, notwithstanding the little work done, large quantities are gathered, and the trade is a great help to the native population. The Bajaus or Sea Gypsies, Malay natives who live on the water along the east coast, add to the export trade by collecting turtle eggs, tortoise shells, shark fins, beche de mer or sea cucumbers, mother-of-pearl, clamshells, and other sea products. Their chief occupation is fishing, and the gathering of these articles is largely incidental.

Discovery of Petroleum

At least two companies have full forces at work drilling and exploring for petroleum in British North Borneo. The discovery of oil in immense quantities in Dutch Borneo and also in Sarawak has led to the belief that it might be found in other parts of the island. A Dutch company is operating at Sebatik, in the southern part of the State, and an American company has been exploring the country on the west coast of British North Borneo and also in Brunei. Oil in small quantities has been found by both companies, but not enough to flow. The wells in Miri, Sarawak, have lately been taken over by the Standard Oil Co. In his annual report Gov. Parr refers to the oil situation in part as follows:

No one with any real knowledge of this territory can doubt its potential wealth. Of the existence of mineral oil in payable quantities it is premature to speak, but indications are promising in some of the localities prospected. The existence of mineral deposits

BRITISH NORTH BORNEO TOBACCO PLANTATION



DAVAL BAY TOBACCO PLANTATION'S OFFICES

Dyak Children, wearing corsets of Brass Wire

Native houses in British North Borneo

remains to be proved, and I trust that efforts will be made in the near future to prove it; possibly the expert geologists employed by the oil companies have some exclusive information on the subject, but if so they are naturally reticent, and as far as one can foresee in the present stage of development, the future prosperity of the country depends chiefly on agriculture and the timber of its magnificent forests.

Large Timber Supplies

Probably the greatest natural resource of British North Borneo is the supply of timber, as practically the entire surface is covered with forests. Both hard and soft woods are found in large quantities, and the export to Hongkong has become an important item of commerce. Steps are being taken by the Government to develop the timber possibilities, and if present plans are carried through there ought to be a market for several up-to-date American sawmills, together with logging equipment, etc.

Exports to United States

The exports to the United States are limited to two articles—cutch, an extract from the bark of the mangrove tree, and crude rubber. Cutch is manufactured on a small scale at Sandakan, and regular shipments worth about $10,000 a year are made to the United States. It is used as a dye, for tanning purposes, also as a preservative when applied as a varnish. The possibilities for the production of cutch are unlimited, as the entire low country bordering the coast and around the mouths of rivers is covered with mangrove trees. After the bark is stripped the wood is used for fuel. Large quantities are shipped to Hongkong.

Shipments to the United States of para, or crude rubber, were worth $11,500 in 1914 before the embargo laid on the export of rubber to foreign countries was declared by Great Britain. Ordinarily all Borneo rubber is either shipped overseas direct or is disposed of in Singapore, whence it goes to all parts of the world. American purchasers who deal direct with producers in Borneo will save the commission which otherwise would go to the middleman in Singapore.

Exports to Philippine Islands

The $25,000 of exports to the Philippine Islands represents for the most part general merchandise and food supplies which go to the Chinese stores in Zamboanga and Jolo from branch houses here. It is customary for the larger Chinese firms to have branches which can be supplied by a regularly established steamer service, and in that way considerable merchandise is sent from here to the southern Philippines. Some lumber in the shape of camphor wood, highly valued for building purposes as it is considered ant proof, is shipped. The largest single item in the Philippines trade is coal. Skippers of local steamers state that Borneo coal is preferable to either the Japanese or Australian article, because it does not "clinker" and leaves very little ash. The 3,020 tons sent to the Philippines last year was for the civil government at Zamboanga. It is customary for coast guard boats and vessels in the customs service of the Philippines to coal at Sandakan. The mines are situated in the southern part of the State, close to the Dutch boundary line, and the coal is brought to Sandakan in large lighters.

Total Import and Export Trade

There is no record kept of the countries of origin of imports into or the countries of destination of exports from British North Borneo. The imports during 1914 were valued at $2,642,710, compared with $3,021,603 for 1913. The value of the exports decreased from $4,110,061 in 1913 to $3,477,935 for 1914.

In both imports and exports the trade for 1914 suffered considerably, due undoubtedly to the war. The long-continued drought affected the tobacco crop and to that cause may be attributed the loss of nearly $600,000 in the exports of this product. The loss of $85,000 in rubber exports was due in part to the drought, but mainly to the demoralization of the trade at the beginning of the war. Of late prices have picked up and better things are hoped for by estate owners.

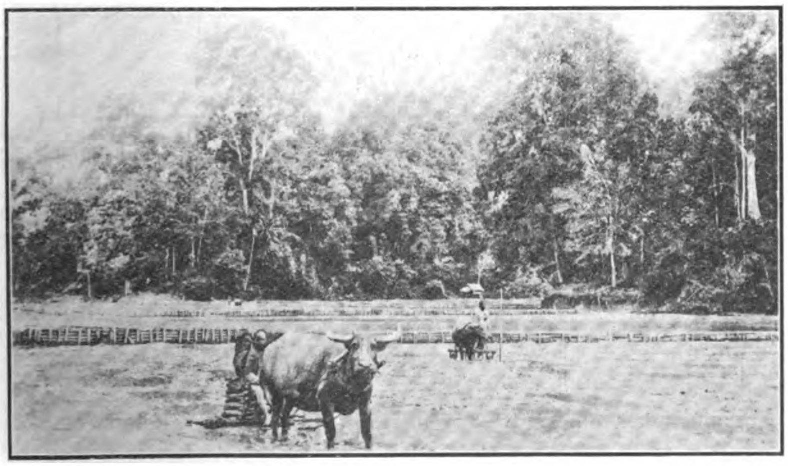
The great loss in the exports of sago is accounted for by the elimination of sago palms in clearing land for rubber estates. There was also a decrease in the exports of birds' nests, coal, dammer, including gum copal, gambier, gutta-percha, india rubber, pepper, and rattan. Timber about held its own. The decrease in the shipments of hemp was due to the loss in imports from the Philippines. The gain in the export of opium was due to the fact that the island of Labuan, under the Straits Settlements, is supplied from British North Borneo. Rhinoceros horns are shipped to Hongkong, where they are valued highly when ground as an ingredient of Chinese medicine.

Items showing gains in the exports included copra, cutch, opium, dried fish, beeswax, and hides.

The imports show a falling off in the total of nearly $400,000, largely in cloth, opium, rice, flour, and grain, and treasure. The great loss in railway and telegraph materials is not significant, for the reason that the wireless plant has been completed and the construction of the railway line on the west coast has been finished. The other losses can be charged largely to the war. Less opium was smoked and less provisions consumed. Many coolies returned to China after war was declared and the consuming capacity of the community was diminished.

Opportunities for Trade Extension

The collector of customs informs the writer that the imports from the United



Harrowing a Rice Field with Water Buffalo

Street Scene near Sandakan

States come mainly by parcel post. Trade with the United States does not amount to much, nor can much be expected. There can be no commerce without people who buy and sell, and the commercial population of British North Borneo is too small yet to have any effect on world trade. It should be borne in mind that this is a tropical country, where the wants of the natives are few and the native trade, therefore, is insignificant. As for the rest, a population of less than 400 Europeans, scattered over an area nearly as large as the State of Maine, has not enough needs to make the demands of trade interesting except to the country that has the transportation facilities.

The trade connections and transportation facilities are all British. The result is that nearly all principal exports except rattan and timber go to London and all imports come from there. There is practically no independent buying in Borneo. The business houses here are, for the most part, merely branches of parent houses in Singapore, and all stores and shops are supplied through Singapore. Since Singapore is British, naturally its source of supply is principally British. But Singapore is a large shipping center and distributing point, and besides is a free port. It would be to the advantage of American exporters to seek an outlet for their wares in Singapore rather than look for trade in the remote cities of the so-called Malay Archipelago. At Singapore all imports and exports for a district comprising a population of at least 100,000,000 people are transshipped. Singapore is the hub of the wheel where all trade and commerce for this vast district centers.

Transportation and Mail Facilities

Since the war transportation facilities have improved in that now there is competition, whereas before the war only one line of steamers was scheduled from Singapore. A Chinese company is competing with the subsidized steamers of the Straits Steamship Co. from Singapore to the southern Philippines, calling at all Borneo ports, with the result that there is a weekly service to and from Zamboanga and Jolo.

An important aid in the administration of civil affairs is the wireless plant, consisting of four stations, one each at Jesselton, Kudat, Sandakan, and Tawao, recently installed. All stations can be used for communication with the Philippines.

Other Improvements

Among the improvements carried out in 1914 may be mentioned the reclamation work at Jesselton, including the construction of a new steel and concrete wharf; an addition to the wharf at Sandakan, so that now two ordinary cargo steamers can dock at the same time; the completion of a new dam for the catch basin reservoir at Sandakan; the building of a hospital for the insane; and the continuous work of improvement on the roads. A large hotel has been built at Jesselton and an electric light scheme has been projected. A new laboratory has been constructed for the principal medical officer at Sandakan and new quarters for the lepers at Bahala Island have been completed. All public work, such as road improvement and keeping streets and parks in repair, is done by Chinese women.

The total revenue of the government during last year from customs duties, both imports and exports, extraordinary receipts, such as revenue from opium, liquor, and gambling monopolies, and revenue from land taxation, telegraphs, harbor dues, etc., amounted to about $1,110,000. The published administration report does not, however, include a summary of expenditures, so it is impossible to even approximate a balance sheet as to the net annual income. The action of the Chartered Co. in setting aside large sums for improvements, together with the policy of aiding financially many of the estates in tiding over bad seasons, indicates, however, that the treasury is in good shape.

THE SOUTHERN SHAN STATES RAILWAY

The Southern Shan States Railway has occupied prominent public attention of recent years, but we do not think it is fully realized that this project is distinctly of a mountain character in its climb to the wheat-growing uplands, but the photograph which we are privileged by the courtesy of the Indian Railway Board to reproduce in this issue will serve to bring this home. It was the highly successful results which followed the introduction of wheat cultivation in the Southern Shan States which rendered necessary railway communication between the wheat-growing districts and the port of Rangoon. Surveys were sanctioned as far back as 1900 for a light line from some point on the Rangoon-Mandalay section of the Burma Railways to Taungyi. This work was carried out during 1901-02 and showed the prospects of the railway being remunerative as very doubtful.

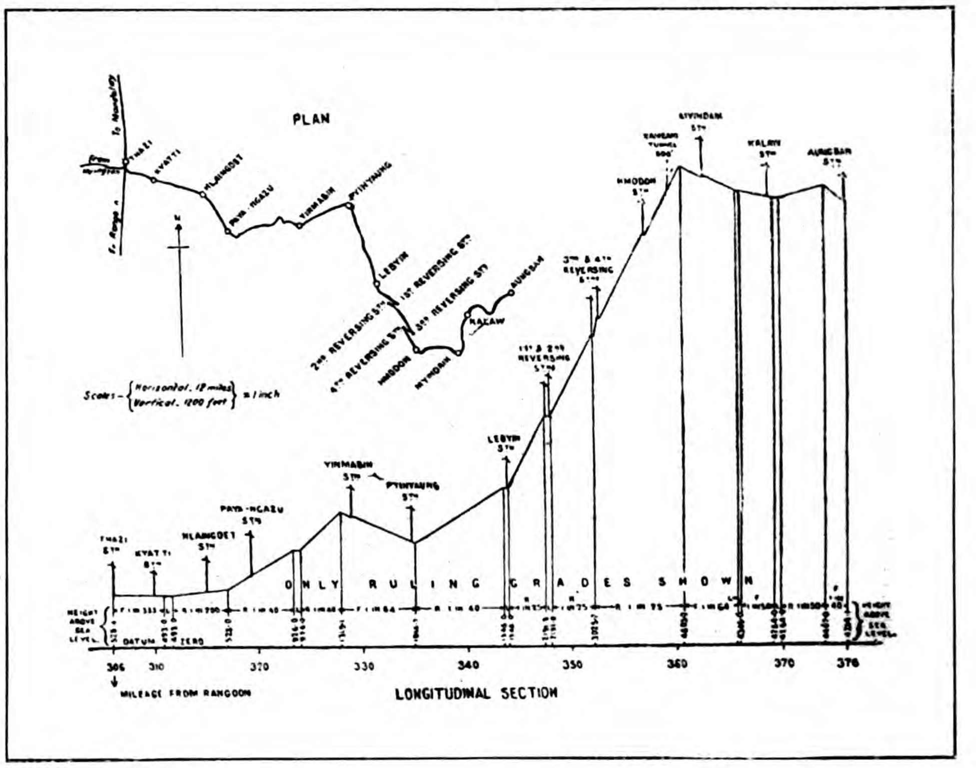
The projected line was to start from Nyaungyan, about 299 miles from Rangoon, and terminate at Sanghai, which is 7 miles short of Taungyi by the cart road. It would be 112.2 miles in length and was estimated to cost, on the 2′ 6″ gauge, Rs. 6,857,667, being at the rate of Rs. 61,110 per mile.

As a result of further investigation later it was determined that the railway should be constructed of the same gauge as the parent line, *viz.*, metre, the junction being at Thazi.

Altogether 70.25 miles have now been opened for passenger traffic, of which 16.05 miles were opened in June, 1912, 6.95 miles in August, 1913, 40.46 miles in February, 1915, and the last section 7.19 miles from Kalaw to Aungban on 19th March, 1915. The through mileage from Rangoon of the section now open is 305.91 to 375.99 miles, and it is now proposed to extend the line on to Heho, a distance of 19.31 miles.

The project, as noted above, was undertaken in order to assist in developing the Southern Shan States, and in particular to serve the trade of the fertile valley of the Inle Lake which lies some 33 miles beyond the present terminus of the Railway. It will also facilitate the civil administration of the States.

At Thazi the climate is not unlike that of the Punjab, and the line, running east, commences at the fifteenth mile to climb into a tangled mass of forest-clad hills and precipitous river gorges, until at mile 63, Kalaw is reached. Here the railway enters a country of rounded grassy hills and pine woods where the climate is pleasant and temperate.



Profile and Plan of Southern Shan States Railway

It is expected that Kalaw will gradually develop into a popular health resort for Lower Burma, for which it possesses many natural and physical advantages.

The profile and plan of the line (skeleton diagrams of which are given) indicate the natural difficulties which, together with the scarcity of any kind of labour and the unhealthy climate of the foot hills, have had to be overcome by the engineering staff in constructing the line.

The cost of extending the line from Aungban to Heho has been estimated at about Rs. 19 lakhs; but the further extension, Yongwhe from Heho, only another 14 miles, would, owing to the difficult nature of the country, probably cost as much as Rs. 40 lakhs, or an average of nearly Rs. 3 lakhs per mile.

PHILIPPINE GOVERNMENT'S PROPOSED PURCHASE OF THE MANILA RAILROAD

Latest advices from Manila are that the plan for the purchase of the Manila Railroad Companies' lines, has been approved by the Commission and has been introduced into the assembly where it was referred to the Committees on Appropriations, Railroads and Franchises. The measure, which consists of a short introductory clause, followed by the full text of the memorandum agreement, is titled as follows:

"A bill ratifying the memorandum agreement of the 18th of December, 1915, between the governor general and Horace L. Higgins in representation of the Manila Railroad company, and the Manila Railroad company (1906), Ltd., appropriating funds for the carrying out of the contract, conferring upon the governor general the right to vote the stock acquired by virtue of the contract, and for other purpose."

In the memorandum agreement reference is made first to the government's having guaranteed four per cent interest on the bonds of the new southern lines of the company.

Next reference is made to the loans of the government to the company to enable it to continue the construction of those lines, the company being unable to secure capital elsewhere and being confronted with stoppage of its construction work. The government's loan, from the gold standard fund, now amounts to P5,637,000.

The funded indebtedness of the railroad company is then discussed. The manner in which the government is to assume the company's indebtedness provides:

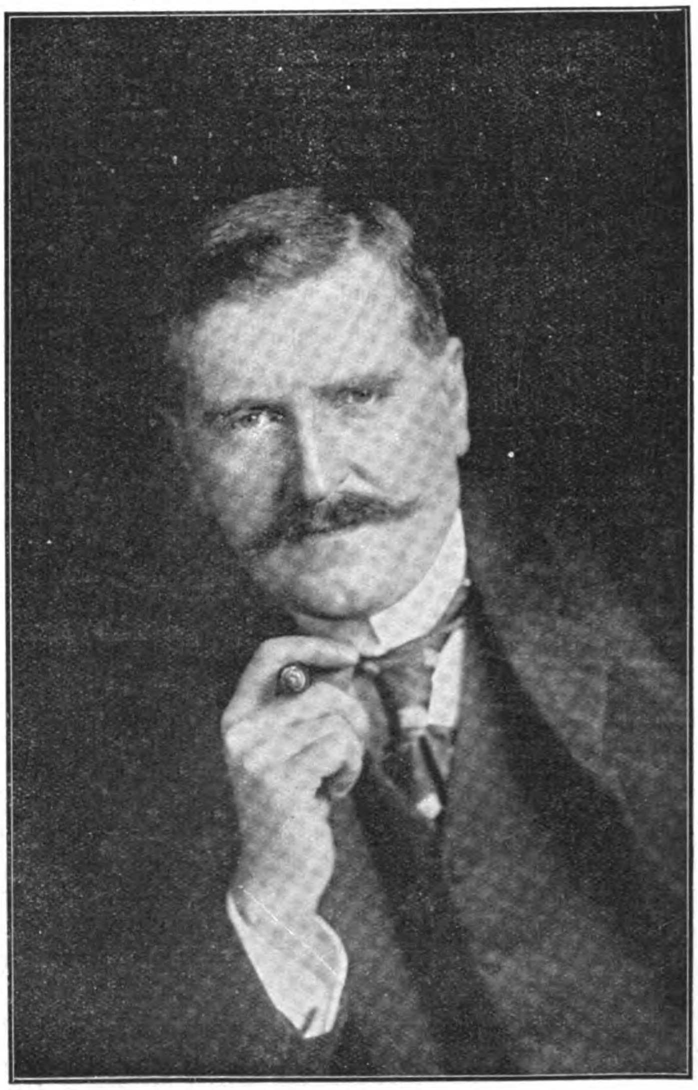
That the four per cent bonds whose interest is guaranteed by the government, and of which $10,575,000 have been issued, shall be extended for twenty years, that is to May, 1959, such extension applying also to the government's guarantee of 4 per cent. After being taken over by the government the company will establish a sinking fund to meet its bond issue obligations, the first three annual instalments of such payment, pending the 20 year extension, being P500,000 each, provision being made for the consent of the bondholders.

The government agrees to lend to the railroad company an amount sufficient to maintain the sinking fund at the required figure and it is stipulated that such portion of the sinking fund as is deposited by the railroad company shall be invested only in the purchase of the 4 per cent bonds, which, on purchase, shall be cancelled. Provision is made, on maturity of the 4 per cent bonds, for the sinking fund to be applied to taking up such of the bonds as have not been purchased and cancelled.

It is provided that the Government purchase all the capital stock of the company now outstanding, amounting to P8,000,000. Of this amount 50 per cent is to be paid on the date of sale and the balance within 18 months thereafter. It is set forth that the railroad company has advanced P9,730,650 to the construction company. Provision is made for the adjustment of this and all other accounts and the obliteration of the construction company.

The railroad company is required to refund at par and cancel all the outstanding $4,330,000 first mortgage 6 per cent bonds and $7,716,000 second mortgage 7 per cent bonds and issue in lieu thereof new bonds maturing at the expiration of 40 years from date of sale bearing interest at 5 per cent instead of 6 and 7 per cent. The issue of new 5 per cent bonds shall not exceed in the aggregate the principal amount of $13,336,000. The net balance due the construction company to be paid by bonds of the railroad company.

Provision is made for the government, on acquiring a majority of the stock of the railroad company by the first payment of P4,000,000, having the right to change the personnel of the board of directors and to nominate new directors and officers of the railroad company, including the general manager and counsel.



President Horace L. Higgins

The agreement is signed by Governor General Harrison and acting Executive Secretary Ferguson, representing the government, and by President Horace L. Higgins and P. A. Alexander, representing the company.

Harrison's Statement

In his lengthy statement to the legislature in support of the proposed transaction Governor General Harrison sets forth that the price finally agreed upon was eight million pesos or approximately 70 per cent of the face value of the stock of the company, which, of course, does not include the funded indebtedness and other liabilities, the total running up to P70,000,000 and over.

After setting forth the terms of the agreement, the chief executive then declares that public ownership is desirable because the railroad is a public highway and "should be operated for the benefit of those served thereby rather than for the financial benefit of private stockholders." Continuing, he says: "A railroad is, in the very nature of things, a monopoly, and experience throughout the world affords convincing arguments in favor of the ownership and control of such monopoly by the people themselves." Looked at from the standpoint of the Filipino people and their future, the perpetual franchise granted the company is declared unwise, and the advantages of abrogating it set forth.

Reference is then made to railroads owned by the government in other countries, the example and experience of Japan, the Dutch East Indies, and British India being especially dwelt upon.

Next is brought up the controversies and friction the government has had with the representatives of the company; the lack of capital, due to the war, tying up further construction work; and the manner in which the government will finance the deal out of its own funds. The governor general then points to a certain saving resulting from the purchase price, as follows: "In consideration of the price of eight million pesos agreed upon for the P11,567,000 par value of outstanding capital stock, the construction company, which is the owner of all of the outstanding 6 and 7 per cent first and second mortgage bonds of the Northern Lines, has agreed to a reduction in the rate of interest upon such bonds to 5 per cent, which will result in a net interest saving of P395,240 to the Manila Railroad Company. It is this saving which gives in my opinion value to the outstanding stock of the Manila Railroad Company."

Speaking of the annual deficits the government had to make good under its guarantee of four per cent interest on the bonds of the southern lines, the governor general states that in 1910 the amount was approximately P19,000; in 1914 it was P51,631.26; and in 1915 the estimated deficit on October 31 was P82,900. In addition the company suffered a loss on its northern lines which might amount to about P100,000, which had been financed by a temporary release of certain of the company's bonds held by the government.

Moreover, until the completion of the present construction plans of the company each year would impose greater interest obligation inasmuch as the new road had been built in sections and these could not be expected to pay for themselves until they had been linked up.

In conclusion the governor general was not very optimistic in regard to the government's management of the road proving a financial success, but he thought this was of less importance to the people of the Philippine islands "than that the road should be operated in such a way as to develop as quickly as possible and to the utmost the country served and the expansion of commerce in the Philippines." Still further, in a large sense, the very acquisition of the railroad system would remove the railroad from politics.

The proposal has met with opposition from the American press in the Islands and also

from a considerable portion of the native press. The objection is not the question of price, but that it is unnecessary, and that the money to be withdrawn from the sinking funds now lying dormant could be better expended on such important matters as irrigation, agricultural development, road and bridge building, and sugar centrals. "*La Democracia,*" one of the leading Filipino papers, frankly confesses that the proposed purchase of the railroad comes as a surprise and that, on investigating the cause of the deal, it has discovered that the English companies operating in the transaction are desirous of disposing of their property as soon as possible so as to employ their funds for war purposes. The journal reminds the government of the inadvisability of undertaking this project at present, as the country is in a very precarious situation economically, while government indebtedness will annually increase and so add to the great burden the country is carrying. The American press in the Islands also considers the purchase of the railway as all-advised and unnecessary. The *Bulletin* closes a long editorial as follows:

"Some day the islands are going to need all their credit in order to borrow money on their bonds to acquire these things, only to find that credit has been exhausted to purchase a railroad, which the country needs about as much as a cat needs two tails. The country will have the railroad but will be unable to trade it for real needs. The only advantage that will accrue to the people will be the privilege of raising several additional millions of pesos in taxes to pay the interest on the indebtedness incurred by the purchase.

"The most essential factor in the future as well as present prosperity of the islands is the coming of capital for the development of its natural resources, industries, and public utilities. The largest investment of capital in the islands up to the present is that invested by the Manila railway. Is the government to announce now to the financial world that the government is to be the means of sending this capital out of the country? Will such action encourage other capital to enter the country?

"We do not know what political benefit is o be derived by the purchase of this railroad. One thing is certain; there will be no economic benefit derived from it. The only expert opinion available of the value of the road is that of the government itself. In a decision by the public utilities board, seven months ago, that body said: 'That the company's income is not sufficient to provide adequately for the protection of its property devoted to public use, to pay its fixed charges, and to pay a reasonable return upon its investment, is shown by the following comparative statement of its income account for all lines for the years 1910 to 1914, inclusive. Is the credit of the country to be mortgaged for generations, in order that the government may acquire a property of this kind? Will government ownership and management get better result than experienced and competent railroad officials have accomplished? If they are then the people should have some knowledge of why and how it is to be done."

NANKING TRADE CONDITIONS

According to a Japanese Foreign Office report business in Nanking has not suffered from the effect of the war situation in the south-west of China. But the city is in a state of depression as usual owing to the close of the year. Owing to the European war prices continue to rise. As for Japanese goods, the Chinese merchants are ordering them in view of future sales, so that the number of transactions is rather large. The banks are cautious and the money market is generally depressed. At the same time the issue of bank notes by the National Bank and the Bank of Communications has increased considerably, which is a notable feature. The amount of circulation cannot be known exactly: but it is about 23,000,000 *yuan*, of which about 700,000 *yuan* was issued recently.

NATIVE DYES OF CHINA

A writer in the *British Chamber of Commerce Journal* (Shanghai) says:

"The subject of dyes is occupying so much attention at present that the following notes on native dyes may be of interest to readers of the Journal. Classification according to colours has been adopted as the easiest method of distinguishing the dyes. These colours are—blue, green, yellow, red, black, and brown:—

"BLUE.—The most common dye employed in China is blue, produced from the 'indigo' plant. There are in reality four plants cultivated for this purpose, viz.; (1) Strobilanthes flaccidifolius, found in central and western China; (2) Indigofera tinctoria, a leguminous shrub cultivated in the south and in India; (3) Isatis tinctoria, resembling the woad of the ancient Britons, and (4) Polygonum tinctorium, the dyers' knot weed of Manchuria, Hupeh, etc. Of these four the indigofera appears to be the most widespread. The principal indigo-producing districts are—or were, for cultivation on a large scale has owing to the competition of foreign dye-stuffs, died out in some provinces—the Sungari basin in Manchuria, Anhui province near the Yangtze, some districts in Kiangsi and Hupeh, central Chekiang, and, in the South, more especially on the West River in Kwangsi. It is, however, grown for local use in practically every province, and is a staple article of Hainan Island.

"In some parts of China three crops of indigo leaves are gathered yearly—in July, August, and September. One *mow* of land yields over 700 catties of manufactured dye if the crop is good. The shoots are steeped in concrete pits for several days in cold water, when they are removed, leaving a greenish water, which, after being well stirred and exposed to the air, becomes darker. Slaked lime is placed in the water to precipitate the indigo, and, when the water is drained off, the dye is found deposited at the bottom of the pit.

"The history of the indigo trade is interesting, as revealed in Consular and Customs reports. As far back as 1878 it was predicted that native dyes, then cheap would be supplanted by cheaper and more dazzling substitutes, the people having a taste for bright colours which they were only prevented from indulging by the incident of cost. Large quantities of indigo then came down in carts from Central Manchuria to the coast; Hankow exported a great deal, and Wuhu imported 40,000 to 50,000 piculs yearly. In the south the exportation from Kwangsi reached high figures, between 40,000 and 70,000 piculs being the annual shipments through Pakhoi, and Wuchow also sending many thousands of piculs down the West River to the dye-works at Fatshan and other towns in the neighbourhood.

"The exportation to foreign countries never reached high figures, as the dry article as required in Europe is not produced. In the early seventies a Commission was sent to Hankow to investigate Chinese indigo, but interest died out, as the colour was found to be too dull to compete with the more brilliant arsenical dyes used at home. It is in the middle eighties that the first reports are heard of the competition of foreign dyes. In 1886 the Consular Report for Chinkiang says that foreign dyes are displacing native for dyeing silk and the finer kinds of cloth. They cost £6 per case of 250 bottles, while only one picul of indigo could be bought for the same sum. The foreign dyes can also dye a greater number of pieces than the native, but the Chinese dyes stand washing better, and do not fade. Dealers in native dyes were finding that their business was becoming confined more and more to coarse foreign cloth and to native cloth. Aniline dyes in bottles first appeared at Hankow in 1882, and made rapid strides; they first appear as a 'principal article' in the Customs Returns in 1886, when Hk. Tls. 700,000 worth were imported to China. The million tael figure was reached in 1893, by which time reports were general that native dyes were being displaced. However, indigo shared in the great development of trade—internal and foreign—which was the feature of Chinese industrial history during the years between the China-Japan War and the Boxer Rising. The development of steamship traffic and the first stirrings of the awakening of the country from its long quiescence caused the opening of new avenues for native trade, which showed a marvellous capacity for expansion. Thus we find Swatow exporting 93,000 piculs of indigo in 1898, and Pakhoi which twenty years before had only produced 15,000 piculs, in 1899 sent away over 84,000.

"But the trade had reached its highwater mark, and from the end of the century there has been a continual decline in the production of indigo, due to the competition of aniline dyes and synthetic indigo from Germany and Belgium. This latter article first appears in the Customs Returns in 1902, when 3,265 piculs worth Hk. Tls. 131,224 were imported to China Three years later, such was the popularity of the dye, and so great the energy with which its sale was pushed, this figure had increased, tenfold, and in 1913 the figures were Piculs 314,268 and Tls. 9,628,670—a truly remarkable development! In the same period aniline dyes ran an almost parallel career. In 1902 the value of imports was Tls. 2,180,000 and in 1913 Tls. 5,352,000. The struggle between this German monopoly and native indigo and other dyes was over.

"This result had been predicted time and again by British Consuls. In 1901 it was pointed out in the Report on the Trade of China that native indigo, would, as in India, have to enter upon a severe struggle, of which the issue could not be in doubt. In 1908 it was stated that vegetable indigo was being gradually superseded, the same complaint coming from Shantung in the north and from Pakhoi in the south. Artificial indigo was not at first much used for foreign shirtings, as it washes out, but for native cloth, but on the other hand native dyers found that not only was it cheaper, but it had the quality of imparting a clear blue colour, with faint sheen—a colour and appearance which was unobtainable with their own dyes. It was said (in 1911) to be extensively used in Hunan, and in Manchuria. Shantung and Honan were supplied with aniline dyes and artificial indigo from Tsingtau. In the south native dyers still preferred the liquid indigo on account of its imparting a more uniform colour to the cloth.

"Since the outbreak of the war Chinese dyers have felt the want of foreign dyes severely, and indigo cultivation has revived, but in the near future the importation will be renewed. The British Consular Report for Shanghai, 1914, expresses the hope that the new British dyes will be placed on the China market, and that an efficient distributing agency will be arranged, for the trade offers very fine prospects. In this hope all who have the interest of the Empire at heart will agree. It is trusted that the present imperfect sketch will stimulate interest in this question. Now that the monopoly established by the Germans in the production of the dyes no longer exists, the example of their pushfulness in this trade, as illustrated by the figures given above, may well be followed.

"RED.—The best known red dye in China is safflower—carthamus tinctorius—*hung hua.* The seed is said to have been originally brought to China by the famous traveller and general Chang Chien from Turkestan, and the

chief centre of production is central Szechuan, though it is also cultivated near Ichang and in N.W. Anhui. A generation ago the export from Hankow amounted to 6,000 piculs, but at present the industry is practically extinct, the dye being used now only for fine silk. The red worsted cord, for which Wuhu was famous all over the Empire, was dyed with Szechuan safflower.

"The balsam—impatiens balsamina, or *chih chia hua* (finger-nail flower) is used in combination with alum as a finger-nail dye, called *hai-na*, apparently in imitation of the Arabic henna. Other plants used for the same purpose are anchusia tinctoria in the north and lawsonia alba in the south, the latter produces the familiar rouge employed by Chinese ladies. Madder—rubia cordifolia, the Chinese *ch'ien ts'ao*, is a creeper whose stems and roots are employed to dye a deep red, whence its name *jan-fei ts'ao*. A purple dye is extracted from the bark of lithospermun erythrorhizon—*tzu ts'ao*, now used chiefly as a drug in the northern and central provinces. The colouring matter is brightest if the plant is dug up in spring. Formerly 4,000 piculs of this dye were exported from Chefoo yearly, and sent to the south. Sappan-wood dye from Malaysia and the Philippines is an important article of import.

"YELLOW.—Turmeric is the product of longa or *yün chi*, found in Szechuan and Tibet and also on the delta of the West River of Kwangtung and in Formosa, whence it is imported to China. The powdered roots are used for dyeing cotton cloth, especially women's clothes. The export of this dye from Chungking reached the extraordinarily high figure of 60,000 piculs in 1912, apparently owing to the failure of the Indian crop. The normal exportation is very much lower. The plant is still extensively cultivated on the Lower Min in Szechuan.

"A yellow dye for silks and cottons is obtained from the buds of sophors japonica—*huai shu*—a familiar tree widely scattered over China. The koelreuteria, also named *huai*, is used for the same purpose. The gardenia florida produces a yellow dye used for staining woods.

"GREEN.—Green dyes are obtained from the leaves of rhamnus tinctorius and other species of buckthorn. The bark of two varieties is boiled together in Chekiang to produce the dye, which is very expensive, and so sparingly used—mostly for dyeing grasscloth. It is a very permanent colour, and constitutes the sap-green of water colour painters. The pigment is named *lu-chiao*. It has been almost totally displaced by aniline dyes, and the same fate has overtaken the dye obtained from a species of polygonum in Szechuan.

"BLACK.—The 'nutgalls' produced on the rhus javanica—the *fu-yang* tree—are extensively employed for dyeing fabrics—especially silk-black. The cloth must first be dyed blue. This process has been elaborately described by Hosie in his report on Szechuan. Mixed with cochineal and other colouring substances the powder from the galls (Chinese *wupeitzu*) produces grey, brown, and fawn tints. Nutgalls are also largely used in tanning. The history of the export trade in this article is one of continuous upward progress from the time when records were first kept (the early sixties), when only a few thousand piculs were sent abroad each year. In 1876 over 20,000 piculs, at about Tls. 10 each, were shipped, the thirty thousand piculs figure was first reached in 1887. In 1888 the general mourning in Germany stimulated the demand, as nutgalls were needed to make black dyes, and since then the demand has never fallen off. Here again Germany, not despising the "muck-and-truck trade," was ahead. In 1893, 48,000 piculs, worth Tls. 570,000 were exported, and in 1906 58,000 piculs, worth almost a million. The record year was 1909, with 66,337 piculs, and the price, at Customs valuation, is now from Tls. 17 to 20. As the Occidental demand is greater than the supply, this trade is worth developing by British merchants, who appear to have allowed it to fall into other hands.

"BROWN.—The dye yam (*shu liang*) or false gambier yields a dark brown dye and tanning agent, commonly used in Yunnan and exported thence to Tongking. It is also widely grown in Kwangsi, and shipped to Kwangtung from Wuchow. It is used for native and foreign cottons, grasscloth and silk, and furnishes the lustrous dark-brown waterproof-looking colour so much affected by Chinese in summer. If a darker colour is required alum and nutgalls are added and in Canton the juice of green or unripe persimmons is frequently applied as a varnish to the outside of the cloth. It is waterproof, and perspiration does not show upon it, to remove dirt only superficial washing is necessary.

"From the artistic point of view the revival of the beautiful vegetable dyes is to be welcomed, as the substitution of chemical dyes has led to a sad degeneration of taste. Many years ago Wardle, the silk expert, observed with regret how the love of the modern gaudy European dyes had seriously affected the products of the native loom in India. This applies, however, to silk and grasscloth rather than to coarse cotton goods, and the principal question at issue for commercial men is the displacement of German dyes by British."

"*Note*.—The naturalist E. H. Wilson states that the galls produced on a less common species—rhus potaninii and named *ch'i-pei-tzu*, which are used in Chinese medicine, possess possibilities worthy of investigation in connection with the quest for an indelible black ink.

"As a dye for silk the cupules of two very common oaks—the *hua-li* and *hua-k'o-li*, are employed. Used with sulphate of iron a dye is produced very similar to that extracted from the vallonea oak of Asia Minor. In dyeing silk with this dye the fabric does not require to be dyed blue first. This dye is used in Manchuria, Hupeh, and the West generally. In the country districts of Szechuan local use is made of the leaves of the walnut, alder, tallow-tree, etc., for the same purpose, and soot from pine wood, mixed with millet spirit is also used."

RUSSIA'S FORESTS

Russia now occupies first place among the nations of the world in the extent of its timber resources, the value and quality of two-thirds of which are practically unknown. The total area of the empire is about one-seventh of the land surface of the globe, and 39% of it is under forests. Those in European Russia cover an area of 474,000,000 acres; in Finland, 50,000,000 acres; in Poland, 6,700,000 acres and in the Caucasus, 18,600,000 acres—a total of 549,800,000 acres, exclusive of Siberia. In the Ural Provinces forests cover 70 per cent. of the area, in the northern provinces 68 per cent. and in the four lake provinces 57 per cent. It is estimated that in western Siberia alone there are 465,000,000 acres of virgin forests, and eastern Siberia, while not so richly endowed, has sufficient timber to supply the world's demand for years to come.

The government owns 285,598,941 acres of forest land in European Russia, 12,826,387 acres in the Caucasus, 360,519,435 acres in Asiatic Russia, and 288,742,000 acres in the Amur region, a total of 947,686,763 acres. Twenty-three per cent of the forest land belonged to landed proprietors and 9 per cent to the peasantry in 1910.

The principal timber lands of eastern Siberia are in the valleys of the Amur River system, which cover an area of about 2,000,000 square miles. Of this area, only about 400,000 miles is considered available for timbering, but according to local calculations, allowing 45 merchantable trees to the acre, this would give some 11,520,000,000 trees. As the time required for these trees to mature is placed at 100 years, 115,200,000 trees could be cut per annum without diminishing the forests, with proper reforestation methods. The Russian forestry department places the total timber land in Siberia at 810,000,000 acres, of which two-thirds can be successfully placed on the market.

The disturbed conditions of Russia, generally speaking, have not, however, stopped the work of developing the local forests. There are in course of organization two strong Russian companies, which are anticipating going heavily into the export of timber abroad. It is still too early to state anything definitely about them, but it looks as if one of them at least will begin this Winter. In two or three years these companies promise to have a visible effect upon timber industries and their influence will soon be felt in the Pacific timber market.

It is quite possible that these companies will not only apply to American manufacturers for the equipment of their factories, but even invite American specialists for the organization of the whole business. The plan includes not only large sawmills, but also box factories, pulp, matches and dry distillation of wood.

REFORESTATION IN JAPAN

The forest area of Japan is decreasing at the rate of 1,000,000 acres a year. This area is being cut away partly for timber and lumber and for firewood, and partly to make the land available for the cultivation of rice.

The total of forest lands in Japan for each year from 1909 to 1913, inclusive, was: 1909, 54,032,565 acres; 1910, 52,048,464; 1911, 47,038,230; 1912, 46,989,298; 1913, 46,231,458.

During the period for which statistics are given the forest area decreased by approximately 1,600,000 acres a year on an average. Estimating the annual decrease at this figure the forests of Japan at the end of 1914 covered about 45,000,000 acres.

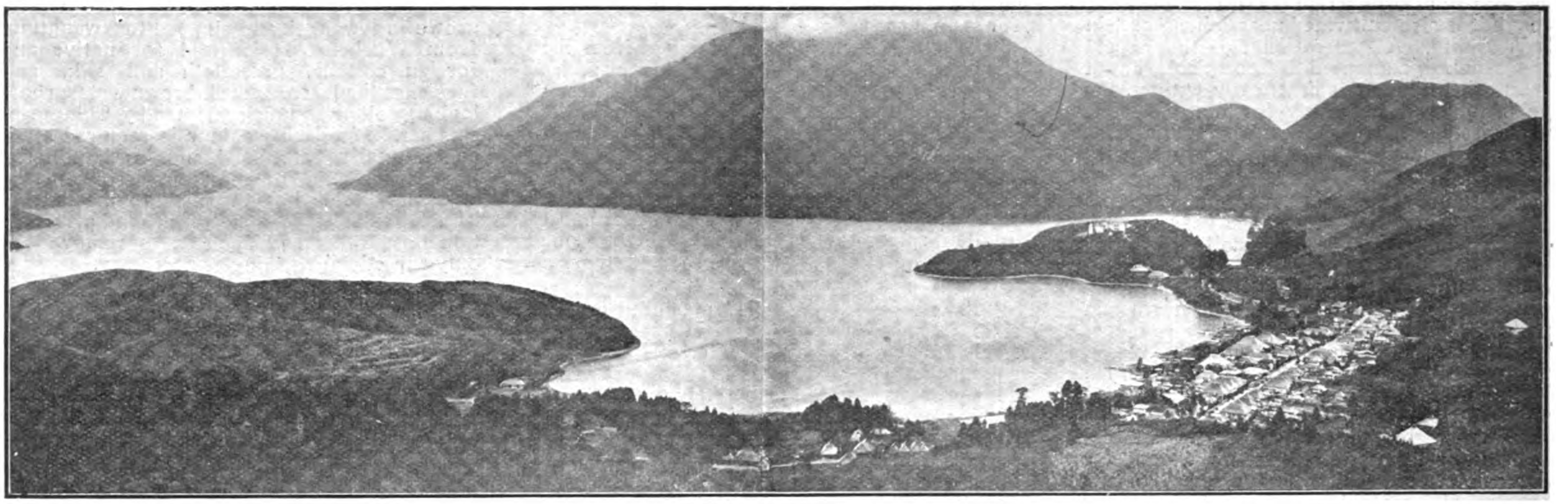
The value of lumber and firewood for these years were in 1000's of Gold dollars.

Years	Lumber	firewood	Total
1908-09	$23,810	$14,223	$38,034
1909-10	22,834	15 104	37,939
1910-11	21,293	12,928	35,222
1911-12	22,436	14,753	37,189
1912-13	24,045	15,222	39,268

The sale of timber from government-owned forests is a source of considerable revenue to the state. In 1914 the budget for the fiscal year 1913-14 estimated this revenue at $5,359,845, in which are included the receipts from the sale of state-owned forest lands. The expenditures for upkeep, supervision and reforestation were estimated at $2,326,811, giving the government a profit of $3,033,034.

BRITISH INDIA MINERAL OUTPUT

According to the report of the Chief Inspector of Mines in India the output of coal in that country last year was 15,727,631 tons, an increase of 241,313 tons over the output of 1913. Of the total output 95.85 per cent. came from Bihar and Bengal. For the first time since 1910 there was a decrease in the output of mica, 38,189 cwts. having been raised. The output of manganese was 555,672 tons. This was a decrease of 81,719 tons. The gold output of the previous year was nearly doubled, being 19,873 ozs., an increase of 80.35 per cent. The output of copper was 4,400 tons; that of wolfram, 31,526 cwt., and bauxite, 9,280 cwts.



LAKE ASHI AT HAKONE IN THE HOT SPRING DISTRICT REACHED BY THE JAPANESE RAILWAYS

IMPERIAL GOVERNMENT RAILWAYS OF JAPAN

[GENERAL RESUME OF ANNUAL REPORT FOR THE YEAR ENDING MARCH 31ST, 1914, AND STATISTICAL REPORT TO MARCH 31ST, 1915]

The following report on the general working of the Imperial Government Railways of Japan, private and light railways and tramways in Japan proper and the South Manchuria Railway for the year ending March 31st, 1914, was submitted to H.E. Count Okuma, Minister President of State, by President Mitsugu Sengoku of the I. G. Railways of Japan. The total mileage of railways open to traffic at the end of the year under review was 7,231 miles, of which 5,473 miles were represented by the Imperial Government Railways, 1,061 miles by private and light railways, 697 miles by the South Manchuria Railway. The train mileage totalled 67,600,502 miles, the vehicle mileage 1,214,408,852 miles, the number of passengers carried 211,251,883 and the weight of goods hauled 47,063,324 tons, while the number of passengers carried one mile aggregated 4,227,712,134 and the weight of goods hauled one mile 4,223,855,803 tons. The total earnings derived from operation were 138,577,754 yen.

The mileage of tramways open to traffic aggregated 1,139 miles (comprising 565 miles of the electric, 203 miles of the steam-worked, 30 miles of the petroleum motor and 270 miles of the horse-drawn and 71 miles of the *rikisha* tramways). The vehicle mileage totalled 114,192,021 miles, the number of passengers carried being 576,229,774 and the weight of goods hauled 1,188,269 tons. The earnings derived from operation were 24,721,171 yen.

The returns for the State lines are as follows:—

Traffic Results

The average mileage of railways open to traffic during the year under review was 5,298 miles for passenger traffic and 5,344.3 miles for goods traffic, an increase over the preceding year of 213.8 miles in the former and 218.2 miles in the latter. The train mileage aggregated 57,402,803 miles, the vehicle mileage 1,082,208,212 miles, being 3,408,871 miles and 93,952,225 miles, respectively, more than in the preceding year. The number of passengers carried totalled 167,773,143 and the weight of goods moved 36,348,362 tons, an increase of 7,061,406 in the former and 3,811,017 tons in the latter as compared with the preceding year. The total number of passengers carried one mile were 3,690,964,619 and the aggregate weight of goods moved one mile 3,053,852,638 tons, being 64,648,120 and 362,388,464 tons more than the respective figures for the preceding year.

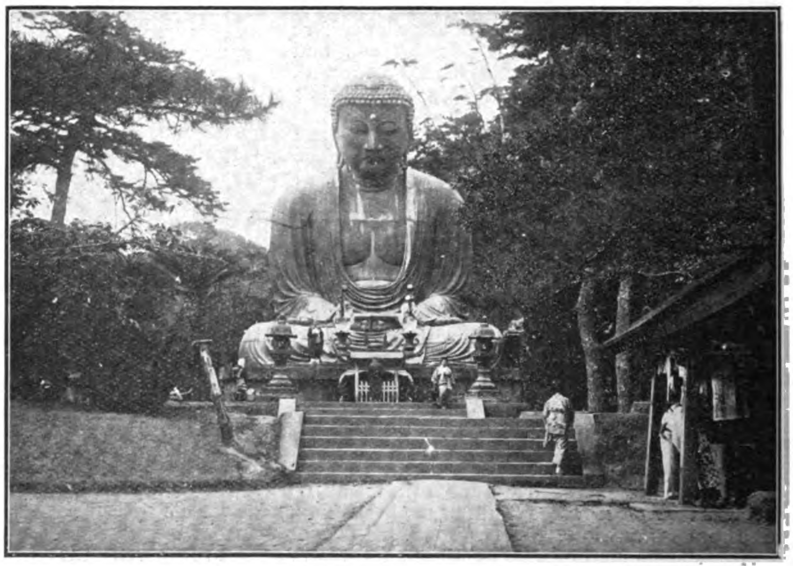
Passenger Traffic

The earnings from operation were 55,975,342 yen for the coaching service, 53,368,932 yen for the goods, 2,240,842 yen for the shipping and 111,585,116 yen for the total, being an increase over the preceding year's figures of 5,760,592 yen in the total.

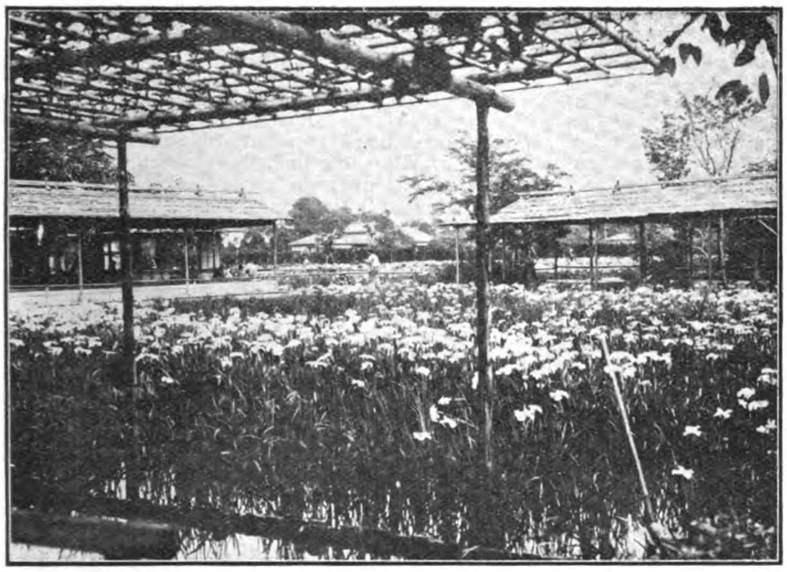
In reviewing the general results of traffic, it is noted that the depressing influence of the national mourning was generally manifest everywhere throughout the first half year, though, it is true, during the spring months a fair volume of passenger traffic was returned, notably in those districts served by the Hokuroku line, the last section of which was newly opened to traffic, thus ushering in a new era in the through route with the Shin-Etsu line.

The Colonial Exhibition held at Osaka in May and the celebration of the anniversary of the demise of the late Emperor in July attracted a substantial number of visitors to the seats of the respective functions. With the expiry of the period of the national mourning, which happened at the time of

FAMOUS TORII AT ITSUKU ISLAND NEAR MIYAJIMA



COLOSSAL BUDDHA AT KAMAKURA



Iris Garden Near Tokyo

Viewing the Chrysanthemum Garden

exodus of people to summer resorts, a general quickening of the passenger service began to be noticed, the returns of August and September being the heaviest on record for the year under review. In autumn the industrial fairs held at Yokohama and Toyama and the launching ceremony of the battle-cruiser "Haruna" at Kobe served an occasion of enlivening business, while the returns of holiday-makers going on autumnal picnics, such as maple-viewing and mushroom-gathering, compared well with the figures of the average year. The natural disasters in Akita and Kagoshima prefectures deranged train service to more or less extent, but on the whole the year closed with a fair prospect of business owing to the brisk transport of party passengers and visitors to the Taisho Exhibition held at Tokyo.

Goods Traffic

As compared with passenger traffic, goods business kept up a very satisfactory show throughout the year. The prosperous conditions noticed in the closing months of the preceding year were well maintained down to summer, foreign rice, manures, cotton yarn and tissue and other commodities returning, one and all, an unusually heavy booking. Owing to the crop failure the business was seriously affected in the Hokkaido and the north-eastern districts, but what was lost in this direction was partially made good by the traffic in cereals, manures, fuels, charcoals and other goods which were immensely carried from and to the above-mentioned districts under 50 per cent. discount rates specially adopted for the benefit of the famine-stricken people. Toward the end of the fiscal year, the delivery of articles of summer consumption began, as is annually the case, to show signs of activity.

Traffic Arrangements

To give a list of the more important arrangements made for the service during the year under review, on April 20th the Awa Kyodo Kisen Steamshipping Co.'s railway line, a distance of 6.9 miles, and on October 13th the Ashio Railway Co.'s Shimoshinden-Ashio line, 25.7 miles, were leased and brought under the direct working of the Imperial Government Railways.

On November 1st a revision was effected in the Rules of Railway Transportation, whereby the new provision was made for allowing dogs and other pet animals to be taken into carriages, while a measure was devised to prevent fraudulent attempts to misrepresent consignment as to designation and amount.

On October 1st, first class carriages were withdrawn from a portion of local train service, the second and third class carriages being substituted in their place.

As a device of fostering the export of cotton yarn and tissue bound for Manchuria, which began to grow in amount of recent years, a reduction of freight thereon was put into force on August 10th in league with the Chosen Railway.

Joint Traffic

An extension was given to the scope covered by the oversea through traffic arrangements. The direct passenger and luggage service with the leading points in Western Europe for conveyance of passengers was inaugurated on June 10th, and on October 1st a similar service was opened with Peking and Tientsin on the Peking-Mudken line of the Chinese Government Railways.

At home, also, joint traffic arrangements were newly concluded with 16 railways and 3 steamshipping concerns.

During the year working expenses amounted to 14,979,459 yen, an increase of 877,112 yen over the preceding year.

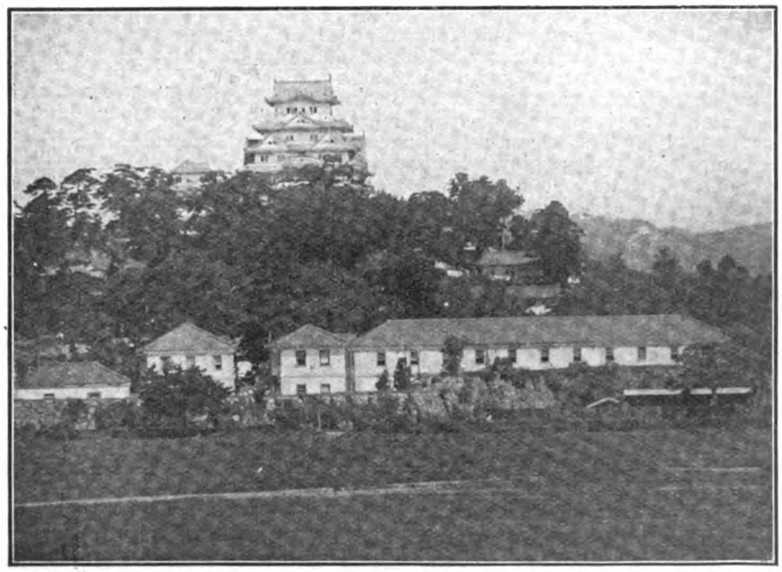
Shipping

The average length of lines worked for steamer service in operation during the year under review was 218.3 nautical miles. The number of steamers in commission at the end of the year was 35 representing a gross tonnage of 19,640 tons of which 4 vessels with a gross tonnage of 4,233 tons were chartered. The trips made during the year numbered 36,473. The expenses incurred by the shipping service during the year amounted to 2,379,085 yen, being 761,191 yen more than in the preceding year.

Locomotive Working

During the year under review locomotive mileage totalled 68,744,136 miles (inclusive of the figures of steam motor cars), vehicle

Osaka Street in Holiday Attire



Himeji Castle Built in XIV Century

mileage 1,212,827,176 miles, the amount of coal consumed for running purposes 2,910,164,152 kin (inclusive of 4,105,720 kin of petroleum dregs as converted at 1 sho of oil=5.4 kin) representing 7,702,947 yen in value, while the amount of oil consumed aggregated 16,139 koku representing 348,954 yen in value. Compared with the preceding year's figures, these items show an increase of 3,946,251 miles in locomotive mileage, of 129,119,631 miles in vehicle mileage, of 262,687,087 kin in the amount of coal consumed representing 819,267 yen in value, and of 1,003 koku in the volume of oil consumed representing 49,463 yen in value. As regards the average of the foregoing items per 100 locomotive miles, coal works out to 4,233 kin representing 11.205 yen, an increase of 147 kin or 3.6 per cent. in amount and of .582 yen or 5.5 per cent. in value, and oil runs to .0235 koku representing .508 yen, an increase of .0001 koku or .4 per cent. in amount and an increase of .046 yen or 10 per cent. in value, while the amount of coal per 1000 vehicle miles works out to 2,399 kin representing 6.351 yen, a decrease of 44 kin or 1.8 per cent. in amount and .001 yen in value. The increase in the amount of coal per 100 locomotive miles is accounted for by the increased service of larger type engines, whose enhanced efficiency is demonstrated by the proportional decrease in the coal consumption per 1000 vehicle miles.

Transportation expenses required during the year under review totalled 14,892,049 yen, an increase of 1,487,279 yen as compared with the preceding year.

Rolling Stock

Rolling stock returns existing at the end of the year under review comprised 2,500 locomotives, 4 Imperial carriages, 6,449 passenger carriages and 42,705 goods wagons, showing an increase over the preceding year of 119 locomotives, 305 passenger carriages and 2,178 goods wagons. During the year various provisions were made for rolling stock and divers improvements carried thereon.

Rolling stock expenses incurred during the year amounted to 7,663,981 yen, being 19,546 yen more than in the preceding year.

Electricity

The length of electric communication lines extended 2,256 ri, and communication wires 24,151 ri with 2,035 sets of telegraph, 9,439 sets of telephone and 2,818 sets of block apparatus.

The number of messages accepted for transmission at properly equipped 1,486 stations totalled 48,011,977, inclusive of 6,746,526 of public telegrams for which the Railways received 248,656 yen as their share in the service. The power and transformer stations numbered 41 with 61 prime motors installed thereto developing 11,058 h.p., while generators aggregated 63 developing 8,217.54 k.w. and transformers 94 developing 8,383.5 k.w. The total length of power cables measured 116 ri and their wire length 442 ri with 392 motors in use representing 5,123,416 watts. The number of electric trams were 87 with 236 motors for running purposes representing 11,592 h.p. The electric lighting apparatus comprised 51,553 glow lamps developing 3,081,146 watts, 710 arc lamps with 419,019 watts, and 28,588 lamps fitted in carriages. Altogether, 13,455,896 k.w.h. were generated and 6,257,149 k.w.h. transformed.

The mileage travelled by electric trams aggregated 4,952,495 miles with 5,823,941 k.w.h. of current consumed for the running, while the electric locomotive mileage totalled 122,155 miles with the current consumed to the amount of 2,246,847 k.w.h.

Finance

The revenue account for the year under review gives 117,897,677 yen for revenue, 96,780,934 yen for expenditure and 1,322,428 yen for the balance of the light railway subsidies, leaving a surplus of 19,794,315 yen. After deducting light railway subsidies, rebates and advances, expenses on account of track supervision, surveying, additional expenses and interest charges, there are left 113,477,055 yen for earnings and 54,551,246 yen for expenses, netting a profit of 58,925,809 yen. Compared with the preceding year's figures, the earnings increased by 5,451,417 yen, the expenses by 4,537,599 yen and the profit by 913,818 yen. The percentage of expenses to earnings from operation stands at 48.1 per cent., being an increase of 1.8 per cent.

As regards the reserve fund account, the revenue for the year amounted to 2,609,310 yen, which were carried forward to the next year's account, there being no disbursement charged to the same account during the year.

In the railway stores and workshop account, the profit amounted to 42,993,614 yen and the loss to 43,076,289 yen, leaving a debit balance of 77,675 yen.

The capital consolidated from the inception of the service down to the end of the preceding year aggregated 932,671,280 yen, to which were added 40,420,215 yen for the year under review, bringing the total to 973,091,495 yen of which 219,252,564 yen were represented by special capital and 753,838,931 yen by the loans.

Railway Stores

The purchase of railway stores totalled 33,081,213 yen including 2,900,375 yen of foreign purchase. Compared with the preceding year, the domestic supplies decreased by 6,106,916 yen, the foreign purchase by 3,175,244 yen and the total by 9,282,160 yen.

Maintenance Work

In maintenance work numerous provisions were made where necessary throughout the system with a view to maintaining the tracks in efficient condition commensurate with the requirements of increasing traffic. To be particular, the re-sleepering, the repair of roadbeds, the repainting and re-rivetting of iron bridge girders, the replacement of worn-out rails and fastenings as well as the repair of buildings were assiduously attended to, while on the other hand extensive repairs and alterations were carried out to permanent way and buildings in connection with the additional and improvement works. Though no small sum was expended upon emergency and restoration works incidental to hurricanes, torrential rainfall and washaways which involved the lines in more or less damage during the year, the best attention was paid to keeping down expenses as well as to ensuring the satisfactory repairs. Then, the remaining portion of the repair work due to the damage from the floods in the previous years was carried out in several parts of the system.

The amount of expenses debited to the maintenance work during the year was 12,624,686 yen, an increase of 1,272,183 yen over the preceding year.

Additional Work

In additional work, in pursuance of the policy of securing the facilities adequate to cope with the increasing traffic, particular attention was directed to the increase of siding accommodation, the enlargement and repair of buildings and structures and also the betterment of signalling and other safety appliances while various provisions were made in order to ensure better track and station accommodation.

Improvement Work

The amount of expenditure debited to the additional work was 1,617,392 yen, an increase of 556,649 yen over the preceding year.

To mention some of the more important items of improvement work carried out during the year under review, the laying of two additional tracks on the Ueno-Uguisudani section, North Eastern line, and the duplication work on the Oyama-Utsunomiya section and the Kitasenju-Abiko section, Joban line, were brought to a finish. In the Tokaido line where the rearrangement of tracks and stations had been in hand for some years past, substantial progress was made as regards the laying of two additional tracks between Shimbashi and Hodogaya, while the erection of the new Yokohama station was started, and the remaining portion of the duplication work was finished for the whole line with the completion of the girder erection of the Tenryu bridge. As to the laying of two additional tracks on the Shinagawa-Tabata section, Yamanote line, the duplication work between Shinagawa and Osaki was well forward, while the reclamation and extension at Shinagawa neared completion. In the duplication work on the Ofuna-Yokosuka line taken in hand during the year, the construction of a second line between Zushi and Taura and the erection of a new signal cabin were finished in greater parts. The water-and-rail terminal 'Link' and connected works for the Shimonoseki-Fusan ferry service were also well advanced. In the Kansai line, the duplication work between Osaka and Tamatsukuri was practically completed, while plate-laying was finished for the Kizu and Nara duplication work, the enlargement of Kizu station brought to the verge of completion, and the purchase of land nearly finished for the enlargement of Nara station. In the Kagoshima line the duplication between Orio and Ongagawa and the laying of Shippu branch line, continued from the preceding year, were completed. As regards the improvement work on the Hakodate-Otaru section, Hakodate line, the water-and-rail terminal 'Link' and connected works at Hakodate were commenced and the second reclamation work at Otaru completed in greater parts, while the reclamation and extension work at Temiya was completed as regards the pier and connected works continued from the preceding year. The Muroran reclamation and extension work was finished as regards the reclamation of the first section in the western part and the equipment of the recovered land in the eastern part, the completion of the track-laying on the latter section being now within sight. In the duplication between Oiwake and Yubari, the work on the Momijiyama and Shimizuzawa section made substantial progress. In the Tokyo Street line, the exterior and interior work of the Central Station building, continued from the preceding year, was finished, and the equipment and connected works are now well forward, while good progress was made with the construction of the main building of Karasumori station. The Central Station-Ueno and the Kajicho-Manseibashi section remain practically as they were left at the end of the preceding year.

New Stations

The new stations erected during the year comprised 3 on each of the Tokaido and the Kagoshima line, 2 on the Central line and one on each of the San-yo, the O-U, the Hakodate, the Kushiro, the Abashiri and the Horonai line, while a new block station was built on each of the Tokaido, the Shin-Etsu, the Hakodate and the Kushiro line.

Permanent way improvement was carried out where necessary throughout the system, including the enlargement of space between track centres, the reduction of gradients and curves, the construction of new bridges and renewal thereof, the replacement of light rails by heavier metals, the strengthening of the tracks with additional sleepers, and improvement of the roadbeds, while steps were taken to replace bridge girders by stronger metals and otherwise to re-inforce the girders.

The amount of expenditure on account of improvement work for the year was 22,591,407 yen, a decrease of 8,426,358 yen against the preceding year.

The length of lines open to traffic during the year was 5,472.7 miles (inclusive of 60.2 miles of the leased lines), being an increase of 255.7 miles over the preceding year, while the length of all tracks extended 8,323 m. 22 ch., an increase of 425 m. 74 ch. over the preceding year. The number of stations in service totalled 1,529, being 88 more than in the preceding year.

Construction Work

The following is a brief abstract of the more important items of construction work :—

The Izumoimaichi-Oda section, Hamada line, was completed and opened to traffic on November 21st, 1913, as previously arranged, though the work was seriously hampered on account of the loose strata which marked the section at places. As regards the Oda-Hanenishi and the Hanenishi-Asari section, the same line, a slight modification was made in the plan of track and bridging in view of floods and other considerations.

No noteworthy progress was made in the construction of the Tsuwano line which was taken up only in parts.

Except the erection of a few buildings, no substantial start was made with the Obama line.

The remainder work on the Omi-Itoigawa section, Toyama line, was brought to a finish and opened for service on April 1st, 1913, wherewith the opening of service was effected on the whole of the Toyama-Naoetsu line.

In regard to the Kitakata-Tokusawa section, Gan-Etsu line, the construction of the Kamanowaki cantilever bridge over the river Akano was brought to completion without a hitch, and with all equipment completed, the service was opened on the Yamato-Nozawa section on August 1st, 1913. The work on the Tokusawa-Omaki section which was seriously retarded owing to numerous engineering difficulties, remained to be finished as yet, while, with the completion of the Omaki-Satori sub-section, the service was opened on the Maoroshi-Tsukawa section on June 1st, 1913.

The Murakami line was practically completed as regards earthwork and other connected works.

The Koriyama-Miharu section, Taira line, was finished with the exception of a small part of work, and it is expected that it will be ready for operation early next year, the work on the remaining portion being well in hand.

In the Shinjo line, the Kogota-Iwadeyama section was completed and opened to traffic on April 20th, 1913, while the work on the Iwadeyama-Kawatabi section was practically finished and is expected to be available for use early next year. A partial alteration was made in the plan of tunneling work on the Kawatabi-Shinjo section which is regarded as one of the toughest works. The work on the Shinjo-Kiyokawa section, too, met with no small difficulties, but it was proceeded with as previously arranged, the Shinjo-Furukuchi section being opened for service on December 7th, 1913 and the Furukuchi-Kiyokawa section ready to be put into service early next year. Completion was practically effected on the Kiyokawa-Sakata section with the exception of part of the bridging of the river Mogami.

The Ohara-Katsuura section, Boso line, was completed with the equipment of all necessary provisions and opened for service on June 20th, 1913, the through service being thereby opened on the whole of the Boso line.

The Kisarazu-Minato section, Hojo line, made fair progress, while the work on the Minato-Hojo section has not made any substantial progress as yet.

The Oita-Kozaki section, Saiki line, was finished and is expected to be ready for operation early next year. No particular progress was made as yet with the Kozaki-Saiki section owing to the presence of loose strata at places.

The Tokushima line was opened for service on March 25th, 1914, and the Tadotsu-Kannonji section, Tadotsu line, was finished as originally arranged, the service being opened thereon on December 20th, 1913.

In the Sendai line, the Kagoshima-Higashi-Ichiki section was opened for service on October 11th, 1913 and the Higashiichiki-Kushikino section on December 15th, 1913, while the remainder sections are finished and expected to be available for use at the beginning of next year.

Statistics of the I. J. G. Railways, Comparison of Fiscal Years 1914 and 1915.

		1914-1915 Total	1913-14	Increase or (—) Decrease
Open Mileage ...	Route Mile (*m. ch.*)	5,686.26	5,470.64	215.62
	Track Mile (*m. ch.*)	8,611.51	8,200.68	410.83
No. of Stations ...	... ...	1,604	1,529	75.00
Locomotives	Tank	1,259	1,248	11.00
	Tender	1,352	1,252	100.00
	Total	2,611	2,500	111.00
Passenger Carriages	4-wheeled	4,279	4,245	34.00
	Bogie	2,414	2,208	206.00
	Total	6,693	6,453	240.00
Goods Wagons ...	Covered	20,535	19,726	809.00
	Open	23,167	22,979	188.00
	Total	43,702	42,705	997.00
No. of Passengers carried...		166,092,421	167,773,143	—1,680,722
No. of Passengers carried one mile		3,623,743,236	3,690,964,619	—67,221,383
Tonnage of Goods hauled...		35,272,875	36,348,362	—1,075,487
Tonnage of Goods hauled one mile		2,982,798,481	3,053,852,638	—71,054,157
Traffic Receipts (yen)	Coaching...	54,671,971	55,975,342	—1,303,371
	Goods Wagon	51,750,496	53,368,932	—1,618,436
	Shipping	2,244,105	2,240,842	3,263
	Total...	108,666,572	111,585,116	—2,918,544
No. of Passengers carried per day per mile		1,795	1,909	—114
Passenger Earnings per mile per passenger (yen) ...		.0138	.0139	—.0001
Coaching Receipts per day per mile (yen)		27.09	28.95	—1.86
Tonnage of Goods per day per mile		1,464	1,566	—102
Goods Earnings per ton per mile (yen)		.0172	.0174	—.0002
Goods Wagon Receipts per day per mile (yen)... ...		25.40	27.36	—1.96
Traffic Receipts per day per mile (yen)		52.20	56.01	—3.81
Train Mileage		57,378,867	57,402,803	—23,936
Average No. of Vehicles coupled per train		18.7	18.9	—2
Vehicle Mileage ...	Passenger Carriages	355,101,502	345,223,815	9,877,687
	Goods Wagons...	715,924,526	736,984,397	—21,059,871
	Total	1,071,026,028	1,082,208,212	—11,182,184
Locomotive Mileage		69,137,394	68,664,112	473,282
Average No. of Vehicles hauled per engine		17.65	17.66	—0001
Shipping ...	Nautical Mileage of Lines worked...	218.3	218.3	—
	No. of Ships...	42	35	7
	Gross Tonnage	21,515.82	19,640.05	1,875.77
	No. of Passengers carried	2,163,202	2,193,979	—30.777
	Earnings from passengers (yen) ...	1,163,632	1,213,866	—50.234
	Tonnage of Cargo	755,030	666,631	88.399
	Earnings from Cargo (yen)	921,429	875,082	46.347
Works ...	No. of Workshops	23	24	—1
	No. Workmen and labourers	14,991	15,918	—927
	Average Wages paid per day yen) ...	10,273	11,186	—913
	Average Wages paid per day per capita (yen)	.707	.710	—3
Revenue Account	Traffic Receipts (yen)	112,169,616	113,477,055	—1,307,439
	Working Expenses (yen)	57,178,286	54,551,246	—2,127,040
	Profit (yen)	54,991,330	58,925,809	—3,934,479
Capital Outlay	Construction Expenses (yen) ...	16,301,375	18,686,241	—2,384,866
	Improvement Expenses (yen) ...	22,230,487	22,591,407	—360.920
	Additional Expenses (yen)	3,362,088	2,617,392	744.696
Working Expenses analysed	Maintenance Expenses (yen)	13,084,922	12,624,686	460.236
	Transportation Expenses (yen)	16,794,654	14,892,049	1,902.605
	Traffic Expenses (yen)	15,628.158	14,979,459	648.699
	General Expenses, Maintenance of Equipment, Hotels, Shipping, etc. (yen) ...	11,670,551	12,055,051	—384,500
Capital (yen)...		1,006,923,089	973,091,496	33,831,593
Staff ...	President	1	1	
	Vice-President	1	1	
	Engineer-in-Chief	1	1	
	Directors	6	6	
	Secretaries	143	133	10
	Engineers	322	308	14
	Clerks	4,569	4,526	43
	Assistant Engineers	2,140	2,175	—35
	Railway Foremen	687	104,936	
	Inferiors and servants	29,432	—	
	Labourers of regular employ	77,664	—	
	Total	114,966	112,087	2,879
Relief Association	Brought over from last year ...	2,467,123.69	1,982,131.94	484,991.75
	Revenue	1,198,687.12	1,095,865.35	102,821.77
	Disbursements	540,447.74	610,873.60	70,425.86
	Carried forward to next year ...	3,125,363.07	2,467,123.69	658,239.38

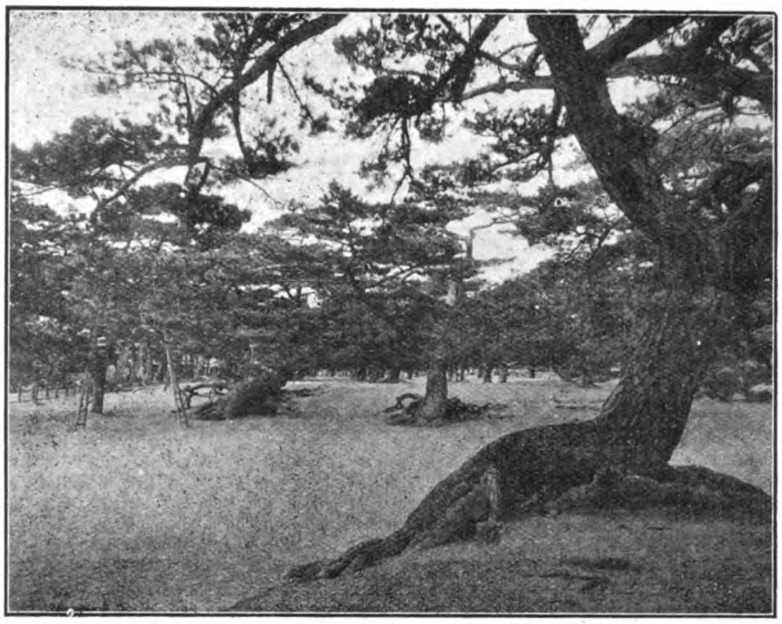
In the Miyazaki line, the Kobayashimachi-Tanigashira section was opened to traffic on May 11th, 1913, the Tanigashira-Miyakonojo section on October 8th, 1913, and the Miyakonojo-Mimata section on February 11th, 1914. The Mimata-Yamanokuchi section, too, was well forward and is expected to be available for operation next year.

The Otoineppe-Kotombetsu section, Soya line, was seriously retarded owing to the difficulty in the transport of material. However, the work made fair progress, so that it is expected to be put into service next year. No progress was made with the work on the Kotombetsu-Nakatombetsu section, as only a portion of it was taken up this year.

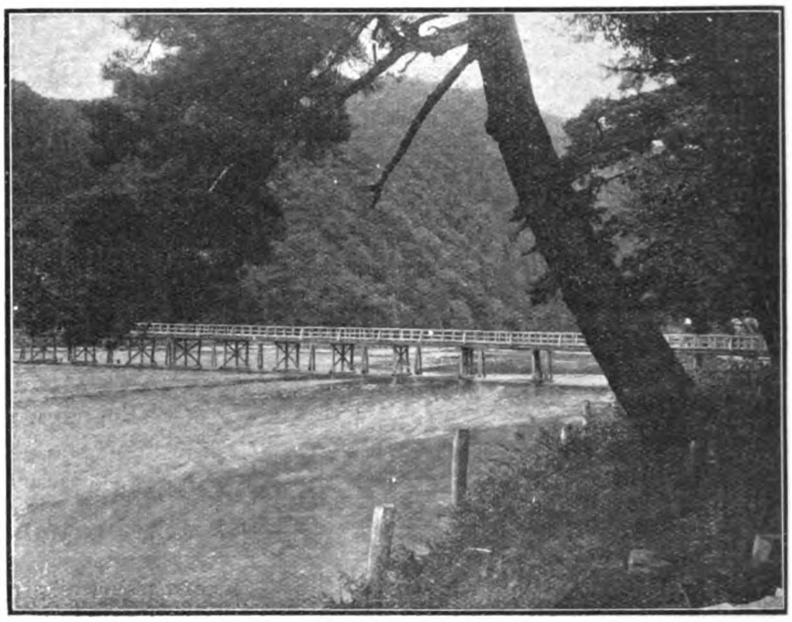
The Shimofurano line was brought to a finish as prearranged, and opened to traffic on November 10th, 1913.

As regards the Nemuro line, commencement was made with the purchase of land, no work being taken in hand as yet.

Turning next to light railway lines, the Moka line was opened for service on July



MAIKO PARK RENOWNED FOR DISTORTED PINE TREES



ARASHIYAMA BRIDGE NEAR KYOTO

11th, 1913, the Kamiiso line on September 15th, 1913, the Akayu-Nashigo section, Nagai line, on October 26th, 1913, and the Oiwake-Futada section, Funakawa line, on November 9th, 1913. The remainder portion of the Manji and the Nagai line as well as part of the Funakawa, the Inukai, the Miyaji, and the Yubetsu line were completed in greater parts, and are expected to be available for use next year.

The total outlay on construction works during the year amounted to 18,686,241 yen, an increase of 9,546,896 yen over the preceding year.

Railway Laboratory

In the Laboratory of the Railway Investigation Office, chemical experiments were carried out on cement, rubber, oils, brick, metals, etc., and tests made on the strength of metals and other materials. Tests were also conducted on the consumption of fuel and the tractive power of locomotives.

As regards sleepers, tests are now in progress on different kinds of wood creosoted, laying them on the specified tracks with a view to ascertain their durability.

Relief Association

In regard to the Relief Association, the Membership on the roll at the end of the year under review aggregated 102,352, an increase of 2,429 against the preceding year. The revenue to the coffers of the Association totalled 1,095,865 yen, and the expenditure 610,874 yen, and the balance 484,991 yen and 1,982,132 yen brought over from the preceding year's account, the total carried forward to the next year's account amounting to 2,467,123 yen. The Association maintains the Tokiwa Hospital in Tokyo and 10 dressing rooms at the workshops in the different localities.

PRIVATE AND LIGHT RAILWAYS IN JAPAN PROPER AND SOUTH MANCHURIA RAILWAY

During the year (1914-1915) there was not a single case of charter newly granted to private railways or of an old charter invalidated. Nor was there any extension made in the open lines. In consequence the number of private railways, both open and not yet open, and their aggregate mileage remained the same as in the preceding year, being 9 companies representing 252 m. 10 ch. open to traffic and 353 m. 76 ch. under construction. In the list of light railways, however, a certain change has been brought about as a result of either new grants or invalidations of charters. The former covered 91 companies with the total mileage of 1,034 m. 27 ch. and the aggregate capital of 52,080,264 yen, and the latter represented 20 companies with 239 m. 47 ch. and 12,850,000 yen. The mileage of light railways open to traffic at the end of the year extended 324 m. 6 ch., which means an increase during the last twelve months of the total open mileage of light railways from 799 m. 12 ch. to 868 m. 77 ch. The lines under projection came up to 104 m. 10 ch. in total for the private railways, while in the light railways they represent 3,103 m. 68 ch.

The aggregate capital at the end of the year was 28,550,000 yen for the private railways and 56,539,222 yen for the light railways.

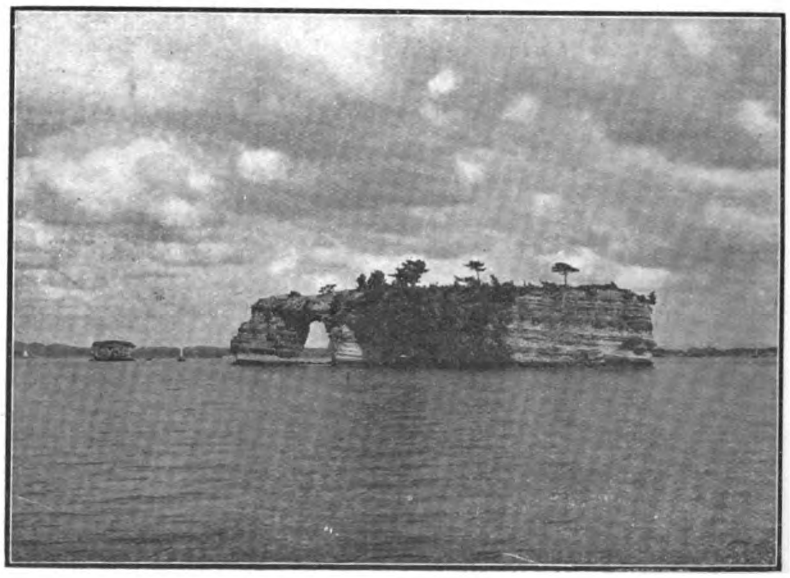
The rolling stock owned by the private and light railways open to traffic at the end of the year consisted of 260 locomotives, 916 carriages, 160 electric trams, 16 steam motor cars and 3,285 wagons.

The locomotive mileage was 5,302,220 miles and the coal consumed 140,116,194 tons. The train mileage reached 4,460,910 miles and the passenger car mileage 21,032,941 miles, exclusive of the electric tram mileage and the steam motor car mileage amounting to 9,076,168 miles and 291,261 miles respectively, while the wagon mileage reached 17,831,690 miles.

The passengers carried during the year totalled 39,267,106, the passengers carried one mile 280,838,421, and the earnings derived therefrom 4,678,974 yen. The luggage conveyed totalled 16,709 tons, and the charges for same 119,226 yen. The goods hauled totalled 4,237,637 tons, the weight of goods hauled one mile 56,396,794 tons and the earnings accruing therefrom 1,685,305 yen.

The traffic receipts aggregated 7,135,516 yen and the working expenses 3,808,433 yen, leaving balance of profit to the amount of 3,327,083 yen.

The total number of the officials and employees amounted to 8,831.



WATER PIERCED ROCK NEAR MATSUSHIMA

ROYAL STATE RAILWAYS OF SIAM

[DIRECTOR GENERAL WEILER'S REPORT FOR THE YEAR 2457. A. D. 1914-15]

On 15th June 1914 a further section of the Northern line Pak Ta—Ban Pin was opened to traffic bringing the total length open up to 836 Kilometers made up as follows:—

Korat line (Bangkok—Korat) 264.1 km; Eastern line (Bangkok—Petriu) 63.4 km; River line (Makasan—River station) 6.5 km; Sawankaloke line (Bau Dara—Sawankaloke) 28.9 km; Northern line (Ban Phaji—Ban Pin) 473.1 km.

The capital outlay from the commencement on all open lines amounted at the close of the year to 56,383,969 Ticals as specified below:—Kor·t line, 17,673,189; Eastern line, 3,424,333; River line, 614,150; Sawankaloke line, 816,582; Northern line, 28,817,492; and the Den Chai—Ban Pin Northern Line of which accounts are not yet closed, 2,153,500; Extensions and improvements, 2,836,598; and Various surveys 48,125; Total 56,383,969.

STATION AT PETRIU, SIAM

Passenger Traffic

The number of passengers conveyed shows an increase in all classes, and in total 75,774. Regarding the passenger traffic on different sections the appreciable increase between Ban Phaji and Pitsanuloke is probably due to general development of these districts by extensive cultivation of former waste lands. Certain stations show noticeable increase in number of passengers as:—

Bangkok, 23,205; Ban Nong Don, 9,873; Ayuthia, 5,537; Tarua, 4,090; Chong Kae, 3,112, and Korat, 3,041. These are attributable to general development of the districts with residential and other places passed by the railway. The growth of Bang Sue with 14,667 is chiefly due to the establishment of the Cement-works and Don Muang with 3,832 to the Aviation-camps. The pilgrim traffic during the year shows a decrease of 3,013 passengers for Phrabat and 945 for Phraten. The increase of 9,392 Ticals for special trains is accounted to the military manœuvres. Average fare paid per passenger was Tical 1.—and the average distance travelled per passenger 50.15 km. Average receipt per passenger per km. amounted to stangs 2. 02.

Goods and Live-stock Traffic

Receipts from Goods and Live-stock traffic show an increase of Ticals 122 722, as follows:

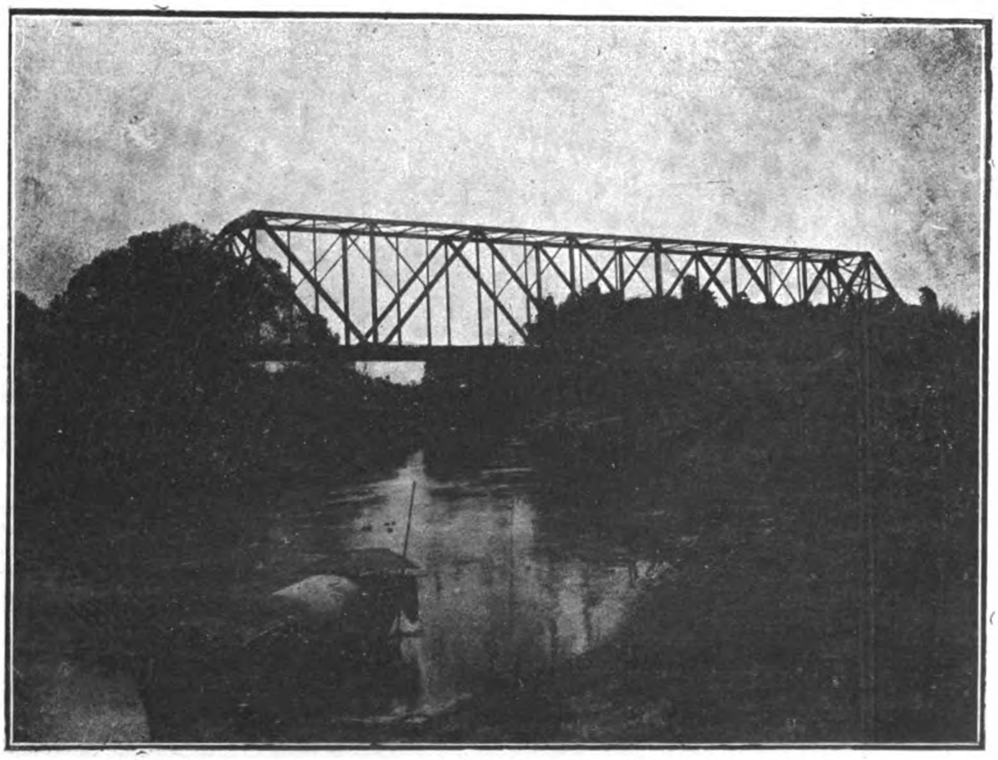
Goods Traffic

Deducting Railway materials for the Northern extension under construction, transported at a low rate, the total quantity of goods of all descriptions conveyed during the year under report shows an increase of 33,749 tons.

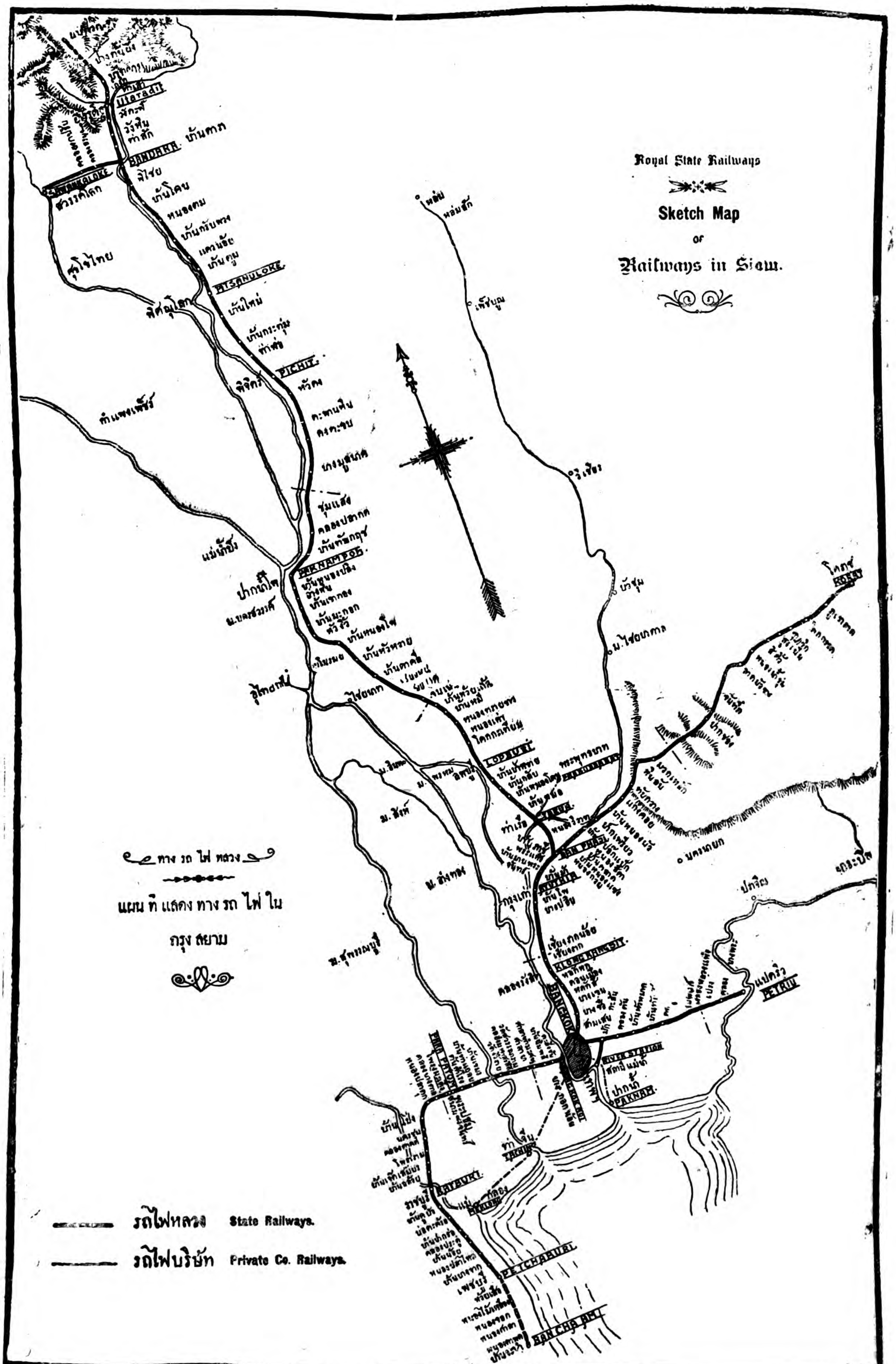
There has been a decrease of 1,004 head of livestock and 3,762 Ticals in income, the latter decrease being due to a falling off in cattle traffic from distant stations, while betel nuts etc.—increased 1,064 tons and sugar increased 1,074 tons. These increases are attributable to the inclusion of other, partly lower class goods, such as cocoanuts, kapi, tobacco, garlic, onions, potatoes, etc., booked under the class of betel nuts and sugar. The above goods are generally loaded together, but booked under the commodity of the principal highest class goods. This evidently is responsible for the increase in the two commodities, and decrease in the other named articles.

Building Materials

The general development of the buildings and structures in the interior is evidenced by the following increases in transport of building materials such as:—Bricks and tiles, 1,157 tons; Cement, 368 tons; Sand, 985 tons; Timber including logs 2,246 tons.



STEEL BRIDGE OVER KLONG THA LAW


Royal State Railways
Sketch Map
of
Railways in Siam.
รถไฟหลวง State Railways.
รถไฟบริษัท Private Co. Railways.
PETCHABURI

The conspicuous absence in the transport of *Cardamum* can not otherwise be explained, than that of the difficulty of export and consequently the ruling low price.

Charcoal Shipments

The falling off 3.131 tons in Charcoal is probably due to over production caused by too many competitors during the last year, thus leaving still a considerable quantity of the stock unsold at the different stations. This tendency on their part resulted consequently in the reduction of transport of this article in the year under report. A decrease showing of 720 tons in this commodity must be accountable to less demand of black clothing, in Siam, as well as in the neighbouring countries. The welcome increase in firewood of 6,739 tons is the evident sign of the flourishing trade in this line. The second class wood, which is not suitable for Railway consumption, is found in abundance in the neighbourhood of the railway line, and with the exceptionally low rate for same, the business has helped to compete with those imported from the coast in former times.

The traffic in fruits shows increase of 655 tons more than the previous year, due to the increased demand, and in supply the stations Pichai, Utaradit and Sawankaloke contributed mostly towards the transport.

Hides and Horns show a decrease of 310 tons, the cause of which was owing to the difficulty in export. Gradually the transport increased again, but as the market prices were not profitable to the shippers a large stock is still kept up country.

Household goods have increased in transport by 858 tons. Kerosine oil, 369 tons; Packages, 1,775 tons; Rice, 834 tons; Salt, 1,645 tons; and this advancement is probably due to further extension of line in the North and the general prospects of the country along the line.

The staple production of the country, unhulled rice, shows an increase by 4,331 tons in transport, and it is interesting to observe that in spite of a decrease on Ban Map Phra Chan—Gengkoi section of 12,272 tons and Sawankaloke line of 323 tons a total of 12,595 tons, there is a compensating item of an increase of 16,926 tons, i. e. from 4 sections. The increase is remarkable in view of the fact that the most of the lands situated on two of these sections were barren and uncultivated in prerailway days.

Sticklac shows a decrease of 770 tons, the cause being probably the same as explained under Hides and Horns.

Traffic Increase

The enhancement of traffic in stone shows 12,988 tons more carried than in the last year. The notable contributors to this increase are:—Bangkok, for public works, 3,600 tons; Bang Pa In, water works, 5,810 tons; Korat, public works, 2,290 tons; and Pitsanuloke, public works, 1,030 tons.

The increase of 1,632 tons in water was due to the scarcity of rain in the Chong Kae district during the year under report. Special water tanks are provided in wagons for the purpose and water supplied from railway pulsometers of Paknampoh at low freight charge only. Average receipt per ton amounts to 5.17 Ticals and the mean distance goods were carried comes to 202.05 km. Average ton-kilometer receipt amounts to 2.56 stangs.

Rolling-stock.—During the year under report the rolling stock has been increased by 9 passenger cars. Stock on 31st March consisted of 58 locomotives, 219 passenger cars and vans, and 806 goods wagons. One locomotive of the oldest type was dismantled, being unserviceable.

Railway Staff

The total number in railway employ at the close of the year under report was 2,628. They consisted of 567 officials, 50 watchmen, 313 workmen and 1,698 coolies.

FINANCIAL RESULTS OF TWO YEARS COMPARED

	Year 2457 Ticals	Year 2456 Ticals	Increase Ticals	Increase in %
Gross Receipts	4,493,494	4,283,669	209,825	4.90
Working Expenses	1,550,644	1,518,345	32,299	2.13
Net Earnings	2,942,850	2,765,324	177,526	6.42
Contribution to Renovation Fund ...	280,931	273,813	7,118	2.60
Remaining Net Profit	2,661,919	2,491,511	170,408	6.84
Percentage on Capital Outlay	4.74	4.53	—	0.21

The percentage of expenditure to gross receipts was as follows:—

	Year 2457	Year 2456	Difference
Maintenance of Ways and Works	11.09	11.68	— 0.31
Locomotive Department	13.87	14.66	— 0.79
Traffic	7.86	8.22	— 0.36
General	0.79	0.88	— 0.09
Total ...	34.51	35.44	— 0.93

Receipts from Coaching traffic show an increase of 85,435 Ticals. Details are as follows:--

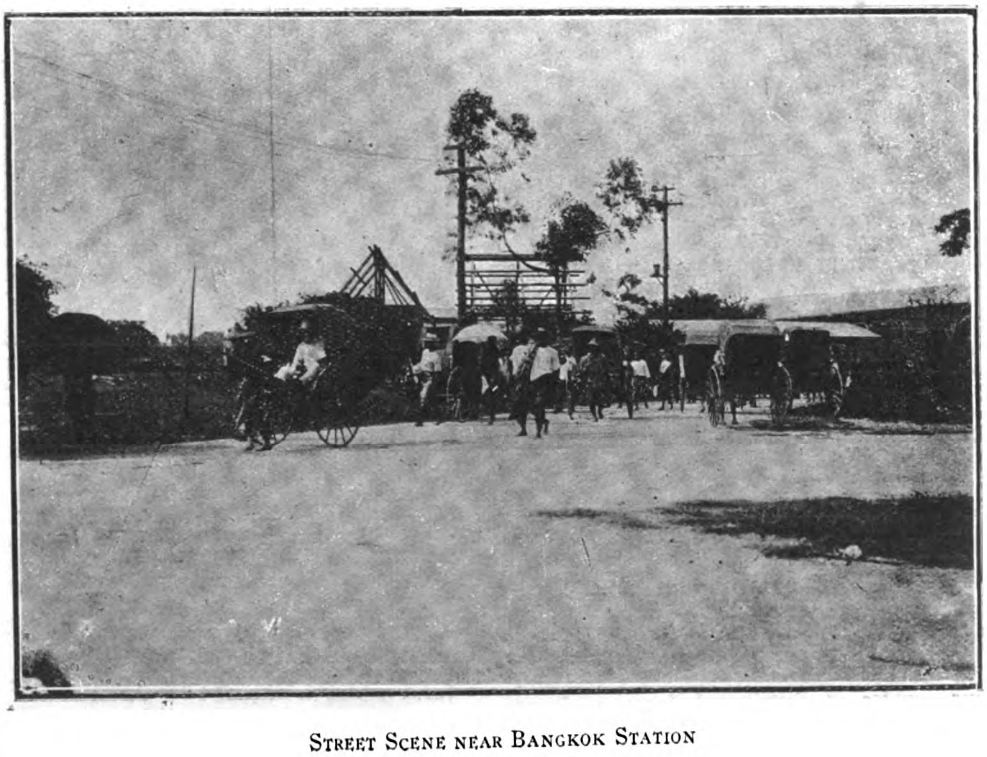
RECEIPTS FROM	Year 2457 No.	Year 2457 Amount	Year 2456 No.	Year 2456 Amount	Increase No.	Increase Amount
First Class	8,445	35,139	6,324	34,949	2,121	190
Second Class...	35,822	101,899	34,033	100,880	1,789	1,019
Third Class	2,386,229	2,296,917	2,3 4,365	2,221,218	71,846	75,699
Total	2,430,496	2,433,955	2,354,722	2,357,047	75,774	76,908

STATEMENT OF ACCOUNTS OF THE RENOVATION FUND

Receipts	Ticals	Ticals	Expenditure	Ticals
Balance 1st April 1914		2,218,266.78	Purchase of 34,241 sleepers	46,713.40
4% interest on the capital of the fund for the year 2456		78,659.85	„ „ 736 bridge sleepers ...	3,191.95
Contribution for year 2457			„ „ 516 switch sleepers ...	2,776.45
a. from traffic earnings:				
½% on capital outlay (average during the year)		280,931.30		
b. from Construction funds:				
On lines under construction 4 locomotives each Tcs 692 ...	2,768			
On lines under construction 50 wagons each Tcs 46	2,300	5,068		
Total		2,582.925.93	Total	52,681.80

BALANCE

Receipts	Ticals	2,582,925.93
Expenditure	„	52,681.80
Balance on 31st March, 1915 ...	Ticals	2,530,244.13



STREET SCENE NEAR BANGKOK STATION

TOTAL RECEIPTS AND EXPENDITURE FOR THE YEAR 2457 (1914—1915)

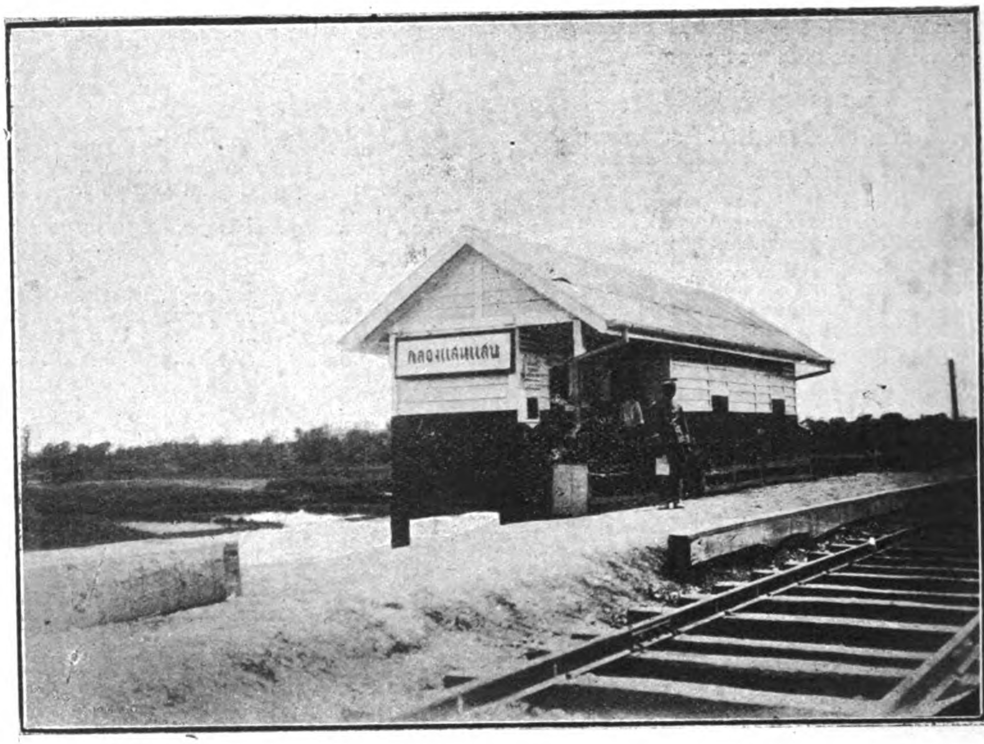
Receipts	Ticals
Coaching traffic	2,469,307.04
Goods traffic	1,807,948.58
Live-stock	134,712.30
Miscellaneous	81,526.00
Total receipts	4,493,493.98
„ expenditure	1,550,644.03
Net earnings	2,942,849.95
Remitted to Treasury	2,530,814.57

Expenditure	Ticals
Personal emoluments	634,087.93
General charges	54,731.13
Expenses for maintenance of ways and works	390,631.10
„ „ fuel, pumps and rolling stock ...	407,530.79
„ „ new works which are not added to Capital Account	63,663.08
Total expenditure	1,550,644.03
Due to Treasury	412,035.38

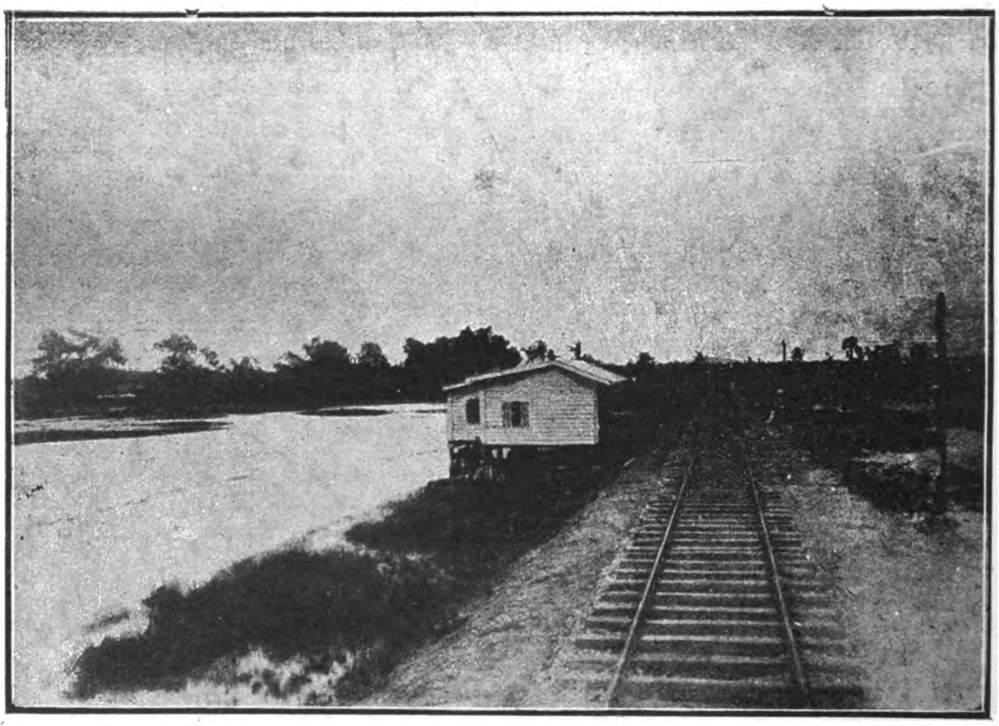
BALANCE, 31st MARCH, 1915

Ticals	Liabilities
3,563.86	Due to Postal Department, account of stamps
206,319.21	„ Construction Department
421,035.38	„ Treasury
2,530,244.13	Renovation fund
38,356.84	Depreciation fund for printing office plant
34,795.52	„ fund for saw mill Nong Nam Khoon
5.50	„ fund for boats and launches
31,171.86	„ stone crushing plant at Chong Keh
500.—	Securities
1,842.95	Memorial Fund
Total 3,258.835.25	

Ticals	Assets
15,439.32	Stock value of printing papers and tickets
233,891.66	„ „ materials in the workshop
75,890.38	„ „ firewood
75,276.36	„ „ timber, at sawyard NongNam Khoon
4,035.—	„ „ explosives
122,468.81	Cash on hand with Accountant
141,749.93	Bank balance
3,563.86	Postal stamps on hand
2,530,244.13	Treasury balance for renovation fund
56,275.80	Sundry Debtors
Total 3,258,835.25	



STATION AT KLONG SENSEP



TYPICAL SMALLER STATION BUILDING

AN INTERESTING INSTALLATION OF GOULDS CENTRIFUGAL PUMPS

In the Hotel Baltimore, Kansas City, Missouri, water is distributed from a large pressure tank located on the roof of their twelve-story building. This tank is normally kept charged by city pressure which is about 80 to 85 pounds at the basement. As this pressure drops at times these "booster" pumps are required in order to keep the tank filled.

Two of these pumps are in parallel each with a Cutler-Hammer pressure controlled self-starter to cut in one of them when the pressure drops below a certain point. One of these is kept in reserve all the time.

The discharge of the third pump is connected to the suction openings of the first two and has a pressure control which will cut it in if the city water pressure should fail entirely as it sometimes does. In that case this pump and one of the first two will be working in series.

The pumps are Goulds Fig. 3001 No. 4-L Double Suction Centrifugals direct connected to 25 H. P., 1,400 R. P. M. Type S. K. Westinghouse Motors. Pumps have a capacity of 300 G. P. M. each.

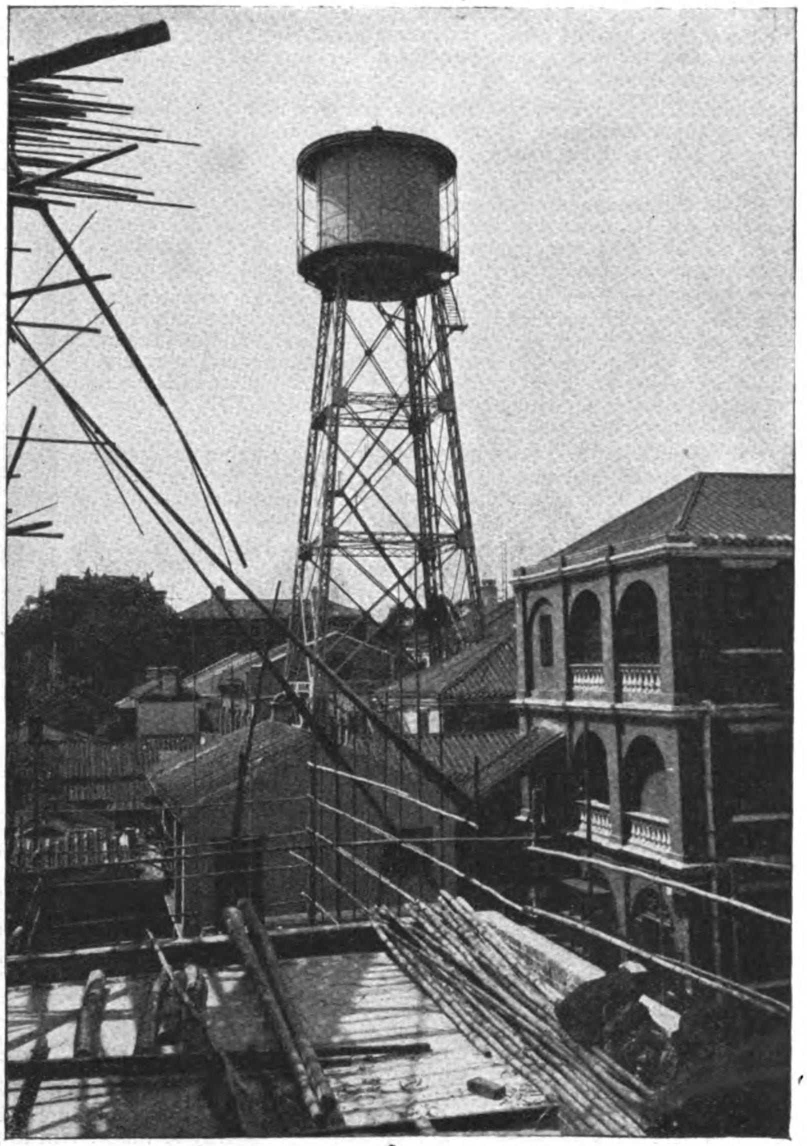
THE PURIFICATION OF PUBLIC WATER SUPPLIES IN CHINA BY THE CANDY MECHANICAL FILTER

As all River Waters in China, as also many Well and other supplies, require purification before they are fit for human consumption, our Readers will be interested in the following description of the new system of Filtration carried out at Shameen, for converting the highly contaminated waters of the Canton River, into a safe, wholesome and brilliantly clear drinking supply.

This system known as the *Candy Declor Filter*, ensures the absolute destruction of the B. Coli, Typhoid Bacillus and Cholera Vibrio; it is in use at many large and well known towns in England, (such for instance as Reading and Windsor), and is one of the many types of Waterworks Filters supplied by the Candy Filter Company Limited, of Westminster, London, England, who specialize in Filter plants for rendering water fit for dietetic and other purposes.

By means of their various designs of Filters and Chemical Plants the Candy Filter Co. are able to deal with every kind of water and by removing therefrom impurities of all kinds, (i.e. bacteria, mud, silt, suspended matter, discolouration, etc., etc.), to make them fit for dietetic or manufacturing purposes.

The following copy of a Report shows the great success of the Filters, at Shameen, Canton City, China, dealing with the water from the Canton River.



River at Canton Showing Pier under which is carried Suction Pipe—above is Elevated Tank and Supporting Structure.

Report on Candy Waterworks Filters at Shameen, Canton City, China, Dealing with Water from the Canton River

Canton, August, 1915.

Gentlemen,

"In reply to your request for some particulars of the new Waterworks we have lately designed and carried out for the island of Shameen at Canton, China, in connection with which your Filters were installed, I have pleasure in giving the following information:—

"Shameen is a small Island formed by the Canton River and a Canal, and is connected to Canton City by a bridge. The River is a large one, and can accommodate Ocean going steamers opposite Shameen. It passes through a thickly inhabited district, and has a very large floating population, moreover the River passes through large tracts of rice-growing fields which fields are largely manured by human excreta, therefore the water is considerably contaminated by sewage, and further is more or less turbid, especially so in the rainy season.

"The new Waterworks comprise a pumping station taking water from the Canton River immediately in front of the Shameen, an elevated storage tank adjacent, 95 feet above ground, a Filter Plant and a distribution system.

"Owing to the nature of the water it is essential that the Filter Plant should be capable of dealing effectually with the turbidity which is of a difficult nature, and also be a complete safeguard against waterborne disease. For these reasons, after considering various types of Filters, we decided to instal your Compound Declor Filters with Alumina and Chlorine Injection Plant, and pump the water through the Filters into the overhead storage tank.

"The installation consists of two Filter units, each capable of dealing with 7,500 gallons per hour, two Tangyes Vertical Treble Ram Pumps, two Suction Gas Engines and Gas Producer; the Pumps and Gas Engines being in duplicate can be used singly or in pairs as may be required, and are housed together with the Chemical Plant in one building. As will be seen from the accompanying photos, the building is of substantial construction and well appointed, the floor and walls being tiled.

"Each Filter is divided horizontally into two distinct and independent parts. The water on its way to the pumps, receives the Alumina solution in proportion, and is then lifted through the upper parts of the Filters which contain the Compound or Double Beds of filtering material. Here the turbidity is effectually dealt with, and the water then passes up to the overhead tank, receiving en route the proper quantity of Chlorine solution. In the overhead tank, the Chlorine has time to act, and the water then passes down and through the lower parts of the Filters, which contain the Declor Filter Bed, by means of which, the excess of Chlorine remaining is removed, and the water goes into the mains clear and bright, and bacteriologically safe.

"The Filters, Pumps, Gas Engines and Gas Plant, are looked after by three intelligent Chinese attendants, and the hours of pumping are about six hours per diem during the summer and five hours during the winter months.

"The Filters are washed out at varying intervals, dependent upon the condition of the water in the river; during the flood season we find it necessary to wash out the Filters every other day, but during the dry season we find once or twice a week is sufficient.

"When taken from the river before filtering, the water apart from being as a rule very turbid is quite unfit bacteriologically for potable purposes. Since we have found by experience the proper quantity of Alumina and Chlorine to use, the Filters are giving us, and the residents, every satisfaction. The Medical Officer of Health who tests the water regularly by MacConkey's method reports that it is eminently satisfactory.

"I may mention that the filtered water, besides being used for ordinary domestic purposes, supplies a Swimming Bath and the water viewed in bulk in this Bath is a severe test of the effectiveness of the filtration for the removal of the turbidity.

"I feel that we have discovered in the Compound Declor System, a Filter capable of dealing with very difficult waters, of which that from the Canton River is a case in point, and I am glad to be able to advise its adoption in connection with various schemes we have on hand, with the confidence born of experience that the system can be thoroughly relied upon."

Yours faithfully,

(*Signed*) F. R. J. ADAMS, A. M. I. Mech. E., Messrs. Thomas, Adams & Wood, Civil Engineers.

To Messrs. The Candy Filter Co., Ltd.
Westminster, London, S. W.

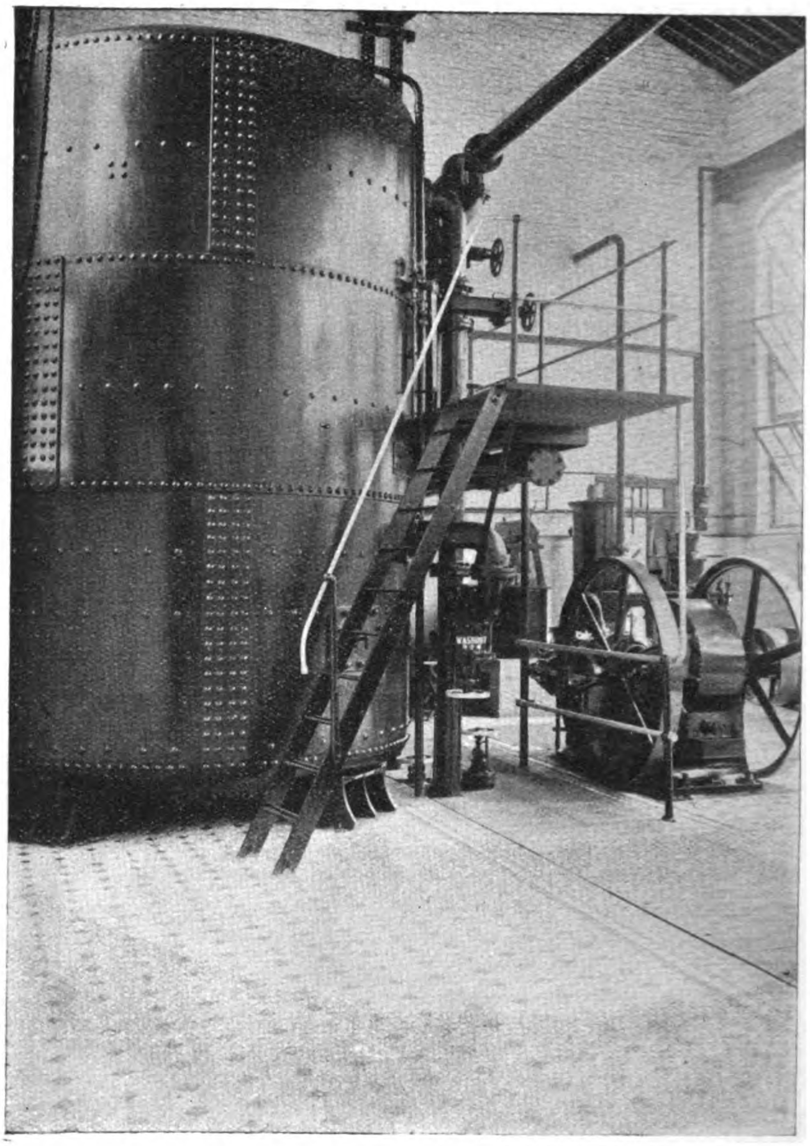
The Engineers under date August 30th, 1915, also kindly afforded the following supplementary information:—

Messrs. The Candy Filter Co., Ltd.,
Westminster,

Gentlemen,

"I have much pleasure in enclosing herewith some particulars of the Shameen Water Works, I have not sent them earlier as I wished to be thoroughly satisfied that we could get good water under the most adverse conditions, and the conditions for the last two months have been the worst on record; as you may have seen in the papers, the floods here last month were the highest and most disastrous ever known in the Province, the Shameen was four feet or so under water, a state of affairs which has never been known; the highest recorded water level being a few inches above Bund level some thirty years ago. As you can imagine, the amount of mud, sand, excreta, etc., which was carried down by the river was immense. The Pump House for five days was under water but as soon as possible after the flood had subsided sufficiently to allow the pumps to work, water was supplied to the Settlement. We did not increase the amount of chlorine usually used and that result was quite satisfactory. I enclose three reports of the Medical Officer, one made a week or so before the flood, one from sample of water taken immediately after the pumps were able to work again, and one three weeks later, from the last of which you will see we are getting excellent results; although a great part of the surrounding country is still under water.

I am, gentlemen,
Yours faithfully,
(*Signed*) F. R. J. ADAMS.



VIEW OF ENGINE AND FILTER HOUSE

CHINA AS LUMBER MARKET

According to a Canadian Trade commission's report, the growing importance of the timber trade of China is a matter of much significance. Considerable as the trade already is, the volume should materially increase in the future. The quality of timber sent to this market is known as China grade, which is not the first quality, but contains a certain percentage of marketable timber and the balance of No. 2. Formerly a large proportion of the demand was made up of large squared logs, 18 to 24 inches square, which were eventually sawn or worked up by hand by native workmen. Less of this class of lumber has been coming in of late than was formerly the case. The greater portion now usually comes already sawn in the form of large planks and long pieces of square timber, flooring and joists and other sawn lumber. Dressed lumber and tongued and grooved is not imported in any great quantity.

Railway sleepers have represented in some years a large proportion of the importation of softwood timber into China, and up to the present time, Japan has supplied by far the greater quantity of this class of wood. Jarrah wood from Australia has been used to some extent in railway construction on certain lines in South China, but on central and northern roads, such expensive wood has not yet been found to be necessary. Creosoted Oregon pine, white oak and tamo (the latter from Japan) are both cheaper and work out at a less annual cost, comparing the life of both kinds of wood, than that of Jarrah. Nevertheless, Jarrah is popular among British engineers engaged in railway management and construction in China. They are not as yet sufficiently familiar with creosoted pine or fir, and have no data as to the life of the latter in this country to go upon, and whether it is prejudice or not, are all very much disposed to employ Jarrah wood whenever possible.

The matter of tea boxes is a subject which requires study, for not all kinds of wood are suitable for this purpose. The latter must be distinctly free from odor of any kind, which might be deleterious to the sensitive flavor of the tea. In all other respects it need not be of any very high quality, so long as it is strong enough in fibre to securely hold the nails without splitting. In addition to the China market for tea boxes, there is also a similar market in Ceylon for the same article. A certain firm in Colombo has, for several years, been supplying that market with tea boxes made from Japanese wood. Boxes for the shipment of eggs are now being made locally in large quantity, and soap and candle boxes will probably be in demand at no great distant date. With the extension of the export trade of China, the employment of wooden boxes must greatly increase.

TUNGSTEN FROM MALAYSIA

During 1915, 3,939.71 piculs of tungsten were exported from the F.M.S., the duty on which amounted to $5,074, being a decrease of $2,720 on the sum collected in the previous year.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

New Railway in Inner Mongolia.—Amplifying the brief statement regarding the Ssupingkai — Chengchiatun Railway line that appeared in the Engineering and Financial columns of the *Far Eastern Review's* January issue, the following more detailed account giving the bearing of the road from a political standpoint, may be of interest. It is abstracted from a report by the Harbin correspondent of the *North China Daily News*.

The news that the new loan for the building of a new railway on similar terms as the Tsinpu Railway between Shihpingkai and Liaoyangchow, better known as Chengchiatun, has been successfully concluded with the Yokohama Specie Bank is only what was to be expected, for an understanding between the Chinese and Japanese Governments has existed for some time past. The importance of this line cannot be over-estimated, and though according to Japanese engineers' surveys the line will be only fifty-two miles, it will eventually be the first section of the main line to Taonanfu, which lies some 160 miles to the north of Liaoyangchow.

Taonanfu may now be designated as the northern boundary town in the Japanese sphere of influence, and though actually in Eastern Inner Mongolia and lying one and a half degrees due north of Changchun, which belongs to Kirin province, it is administered over by Fengtien Province, whose capital is Mukden. Once the construction of this main line to Taonanfu is decided upon, schemes will be on foot to continue this line on to Tsitsihar, the capital of the Heilungchiang province, but before anything definite can be decided, it will be necessary for the Chinese Government to come to an arrangement with the Russian Government, for all the territory north of Taonanfu lies in the Russian sphere of influence.

The actual situation from a Russian point of view created by the building of this quasi-Japanese line to Taonanfu is an interesting one, for it undoubtedly will affect traffic earnings in the Chinese Eastern railway, who will find it necessary to have at least branch lines to tap the natural wealth of Eastern Inner Mongolia and to link up with their main line in order not to allow the Japanese line to secure a monopoly of this trade and divert it southwards. I will at a later date deal with this important question of the future in detail. It is now necessary to give some details of the first section to Liaoyangchow on which work no doubt will begin this spring.

Lying some seventy-five miles south of Changchun, the northern terminus of the South Manchuria Railway system, on the main line to Tairen is Tsupingku station. The undulating stretch of country between these two points lying in the basin of the Liao, which is fully cultivated, resembles within a month of harvest a brown sea, for the principal crop grown is kaoliang, the staple food of man and beast in these districts. There is no Chinese town at Ssupingkai; it is a Japanese Railway settlement, pure and simple, governed by the Japanese authorities. It is, however, of historic interest, for it was here that the armistice agreement was signed by the delegates of Field-Marshal Oyama and General Linievitch before the Portsmouth Treaty had been arranged; and now again it is destined to play an important rôle, for from this point Japanese colonists, traders and bagmen will pour in and prepare the way to secure a monopoly of the trading in Eastern Mongolia.

The present estimated population amounts to roughly some 6,000 souls, out of which some 10 per cent. are Japanese. It is only during the winter months that Shihpingkai shows any signs of commercial activity when produce is brought in here, as elsewhere, by native carts from the neighbouring districts, to be shipped southwards by rail. As it is the starting point for the trade marts of Eastern Mongolia, there is continually a stream of people arriving and going.

The present occupation of most of the Japanese residents with the exception of a few firms dealing in Japanese piecegoods and exporting of produce, is of a most despicable kind; medicine shops whose chief source of profit is the sale of morphia, pawnshops where extortionate interest is charged but no questions are asked as to where the goods to be pawned came from, gunshops where fire-arms and ammunition are sold to any one who can pay the price asked for, are to be found in the Settlement, and thrive at the expense of the natives.

The nearest Chinese town is Lishouhsien, situated thirty-five li north of Ssupingkai. Here a magistrate resides, under the jurisdiction of the Taotao of Taonanfu. The railway line will pass through Pamiencheng, a growing town boasting of 5,000 inhabitants on the main cart-road to Liaoyangchow. This latter city is one of the new marts in Eastern Mongolia opened up to international trade by virtue of the new Sino-Japanese Agreement. It stands on the right bank of the West Liao, which together with the East Liao form the dual head of the Liao River. It lies amidst a level plain sloping down on the western fringe, allowing this vulnerable portion of the town to ready flooding in time of heavy rain.

Forty years ago Chengchiatun was but a small village. The arrival of some Chinese interested in the cattle and horse trade marks the beginning of its growth. The immediate district is endowed with fertile soil, excellently adapted for agriculture, and the arrival of Chinese immigrants in increasing numbers has quickened the development of the place. In 1901 it was created a magistracy under the style of Liaoyang and five years later a river mart was opened near by at Sankiangkou, and this served to boom the junk traffic, whilst in 1913 it was made permissible for junks to go up the river a further seventy li beyond Sankiangkou, thus materially adding to its prosperity. The town has grown by degrees, and was not founded on a settled design, consequently there is a total absence of any shape of a design in building the town, and the layout of the streets is most irregular. From a village it was raised to a township, and from a township it has grown to a city. Its present population is somewhat under 40,000.

The city is some two miles in length and about a mile broad. There is no wall surrounding the town, but several of the produce dealers' and pawnbrokers' premises and compounds are enclosed with brick walls over 10 ft. in height, on which are mounted guns for protection against brigands. The principal Government Offices include the prefect's yamen, the tax-collectors' office, the Mongolian rent-collector's agency, the police station and the Court. Live stock fairs are held between the 8th and 11th moons of the old Chinese Calendar, but with the growth of agricultural produce the livestock trade has been universally affected.

The town is situated in the district often known by its Mongolian name, the Chelim region; it is linked up with cart roads on the north via Kiating (another of the new marts opened to international trade) with Taonanfu, on the south with Fakumen and Hsinmingfu, on the west with Chinchow via Paiyintalai (also now opened up to international trade) and on the east with Tsupingkai and other railway stations on the South Manchuria Railway. Thus the trade centre of the Eastern part of Eastern Mongolia is centred at Liaoyangchow, and with the construction of above mentioned railway section is the key to the mine of the latent natural wealth contained in Inner Mongolia.

The actual building of these fifty-two miles of iron road should proceed apace, for the country is flat and the only piece of work attended with engineering difficulty is the railway bridge over the Liao, which lies about a mile to the east of Liaoyangchow. There seems no doubt that owing to the natural resources of the district through which the railway will pass that it will be put on a paying basis as soon as it is completed. Liaoyangchow even before it become opened up as an International mart had a Japanese population of over 100 souls, and Samunchang a few Japanese of the pedlaring classes. No doubt these numbers will be increased greatly this year.

Ssupingkai-Chengchiatun Railway.—Mr. S. Hori, Acting Director of the South Manchuria Railway Co., Bureau of Technics, has made the following observations regarding the delay in getting this projected line under way:—

It appeared at the time of signing the Agreement that the first thing was to appoint the Director of the Railway on China's part, and that the appointments of the chief engineer and other principal officials were to follow before the work of construction was begun. No official appointment of the Director has yet been bulletined. As matters stand, it is unlikely that the construction work will be begun this Spring. Unless the appointment of the Director and the Chief Engineer takes place during the present month of February, the construction work may be delayed one year, and the time for opening the line to traffic correspondingly put off. No thorough surveys have yet been made and some time must be allowed for the purchase of construction supplies. In the mean time cold weather will return, making the starting of work impossible. —*Manchuria Daily News.*

Later intelligence reports the appointment of Mr. Wu-wu (Director of the Kirin-Changchun Railway) to the additional post of Director of the Ssupingkai-Chengchiatun Railway.

The South Manchuria Railway Co. is hard put to it for rails as it has used all rails in stock, and finds it difficult to obtain a fresh supply either from abroad or from Japan. The rails of disused sections have been taken up to meet the more urgent requirements. The Railway Company negotiated with the Government Steel Works, Edamitsu, for a supply of rails, and was refused, but Baron Nakamura (the Company's President), who had been the reorganizer and President of the steel works for 13 years, induced the Works to furnish about 30 miles of rails. As to the 20 miles of rails wanted for the extension of sidings, etc., orders have been sent to the United States. On their arrival these rails will be exchanged for part of the lighter rails now on the Railway lines and the latter will be used for sidings and at the Collieries.

Inner Mongolian Survey.—According to the Chinese organ of the Mukden Government, the scheme to construct a railway between Chinchow and Dolonor via Chaoyang and Jehol, about 367 miles in distance, has made good progress, and the first surveys have already been finished.

Kirin-Changchun Railway.—As negotiations are about to be opened at Peking over the Kirin-Changchun Railway Loan Agreement, the Japanese residents at Kirin are said to have passed resolutions to the following effect:—

China shall be asked to accept all the demands advanced by Japan when the negotiations for the Railway Loan were originally taken up. The Kirin-Changchun Railway shall be raised to a similar standard of efficiency as the S. M. Railway. The poles of the Railway service telegraphic system shall be utilized for the establishment of a telegraphic service between Changchun and Kirin, and the Japanese post office at Kirin shall be opened to telegraphic traffic, or else the Kirin Railway Station shall be made to take up public telegraphic traffic in Japanese *kana* syllables.

The resolution has been presented to the Foreign Office, Tokyo, and the Japanese Legation through the Japanese Consulate, Kirin.

S. Manchurian and Shantung Railway Agreement.—The through passenger traffic agreement between the South Manchuria Railway Co. and the Shantung Railway was signed on February 5. The Dairen Kisen Kaisha also signed and the actual opening of the through passenger traffic is expected to take place before the end of the month. The steamship lines available will be the S. M. R. Co. Dairen-Tsingtau-Shanghai route and also the Dairen Kisen Kaisha route.

SHIPPING

U.S. Building Ships.—American shipyards have under construction now more vessels than ever before were building in the United States, to add to an American merchant marine whose gross tonnage already is the largest in the country's history, said a report issued by the commissioner of navigation. Ninety-eight merchant vessels of more than 3,000 tons are being built or are under contract. These with many small vessels being constructed have a total tonnage of 761,511. The total tonnage of ships under the American flag, numbering, 26,888, Dec. 1, was 8,444, 258, a net gain of more than 50,000 tons since July 1. There was a net gain of 187 ships, despite 272 vessels lost, abandoned, and sold to aliens. Twenty-three came under the American flag from foreign registry and 436 were completed in shipyards.

American Naval Menace.—The *Osaka Mainichi* says self-preservation or protection can become a cause of war. The programme of expansion of the American army and navy is about to be carried into practice. The necessity for it is attributed to the opening of the Panama Canal and to the need of securing supremacy on the Pacific, and this is explained as a measure of self-preservation. But when a country with inexhaustible wealth like the United States begins to build a formidable army and navy, she cannot but become a menace to others. It has been the long cherished desire of America to establish herself in China on the pretext of solving the Pacific Ocean problem. If therefore the armament expansion is part of the Pacific problem, it cannot but be looked upon as a direct threat to this country.

Ferry Boat for Canton.—A 40 ft. motor ferry boat has been built by Messrs. Alex Ross and Co. in their yard at Kowloon for the Pak Hok Tong Launch Co. of Canton. The boat, which was designed by Captain Lukmanoff, and has been named the "White Crane," is engined with a Scripps 26 h.p. motor, and is provided with an electric starting system which also provides for the electric lighting of the boat. All the appointments are quite up to date, and the general design and seating arrangements present many practical novelties and improvements, all having special regard to the handling of boat and passengers in the crowded river between the Shameen and Pak Hok Tong. On the trials it accomplished a speed of 8.6 knots over the measured mile, which is considerably over the contract speed. The "White Crane" will be put into immediate service.

N.Y.K. to Raise Rates.—The N.Y.K. has decided that the freight rate in free vessels on the American line will be raised 20 per cent. from April 1. But the rates on valuable articles, less weight and bulk, will be unchanged. The charge of 100 pounds of raw silk is to be $2, hemp braid $1.87½ and waste silk 65½ sen.

Ice Breakers to Vladivostock.—A Chinese correspondent at Tientsin states that the Hai-ho Conservancy Board, having found it easy to keep open the river Pei-ho this year with two ice-breakers, has chartered the other two ice-breakers to the Kailan Mining Administration. These two steamers have gone to Vladivostok where they will be employed to assist the Russian ice-breakers in keeping open the two channels into the port, the one being used for ingress and the other for egress. The charter-price is not known.

Japan's Tonnage Decreases.—According to an investigation carried out by the Department of Communications, the total number of vessels which entered and left ports in Japan during the year 1915 was 8,975, with a total tonnage of 19,634,882. This is a decrease of 3,930,601 tons from that of last year.

Activity in Japan's Shipyards.—The shipbuilding industry in Japan is now in a very prosperous condition, all shipbuilding yards having orders to their full capacity. The number and tonnage of ships, which are now in the course of construction and for which shipbuilding subsidies have been granted are as follows:—

Name of Dock	Number of vessels	Tonnage
Mitsubishi Dockyards.	10	41,299
Kawasaki Dockyards.	8	38,580
Osaka Iron Works ...	14	42,340
Uraga Dock Co	5	10,640
Harima Dockyards ...	2	2,300
Fujita Dockyards ...	1	2,100
One Dockyards ...	1	1,250
Total	35	138,559

Besides, these shipbuilding yards are receiving large orders for future building, work on which has not yet been started. It is reported that the scarcity of shipbuilding materials is now being keenly felt, the present stock on hand being sufficient for only a very short period. The builders have to import the materials as the work advances, but the difficulty is that import from England is now practically impossible, while the American materials are either unsuitable for use in Japan because of the section length, or are too expensive. Vessels for transportation are also scarce. Already some shipbuilding yards are experiencing great difficulty in obtaining materials. Moreover, the present prosperity in this industry has caused a great demand for skilled shipyard laborers, especially for first class men. This has resulted in competition among the shipyards to secure these laborers. Consequently, wages have risen. The present rate is from one yen to one yen and a half per day, but it is expected that the rate will further increase in future.

Japan's Mercantile Fleet.—Japan now occupies third place in the world's shipping according to a writer in the Japan Times. Lloyd's Register apportioned the world's tonnage before the war as follows, in millions of tons:—

British	21	French	2¼
American ...	6	Italian	1¾
German	4½	Japanese... ...	1½
Norwegian ...	2½	Dutch	1½

Russia, Sweden, and Austria each have a million, and Spain and Denmark slightly less. The biggest sailing fleet belongs to Norway, while Japan's large junk and schooner fleet is not included in the returns, which take count only of vessels over 300 tons.

Mr. Wakamiya, of the mercantile marine bureau of the Department of Communications, has made the following statement regarding Japan's increase in Shipping facilities:—

Prior to the outbreak of war, the total tonnage of mercantile ships in the world was about 49,000,000 of which some 14,000,000 tons must now be deducted as so many ships are either destroyed or detained in enemy ports, while many others are employed for military uses. Before the war, twenty-three ships on an average used to come to Japan monthly from Europe, but the number is today less than half, while the American route is almost monopolised by Japanese shipping.

At present there are eleven periodical sailings of Japanese ships, eleven special ships on the European service, while the tramp boats, owned by Japanese, plying from one end of the globe to the other, number over sixty aggregating 400,000 tons. Japan is now 3rd in rank in the world's shipping, in contrast to the seventh place she held before the titanic war broke out in Europe. The immediate need for Japan is experienced and well disciplined seamen for this enormous expansion of her mercantile marine.

Progress in Shipbuilding.—Japan now has 2,132 vessels over 20 tons with a total tonnage of 1,604,900 while the number of vessels over 1,000 tons is 416 with a total tonnage of 1,331,308. The details are as follows:—

Ships	Number	Tonnage
20 tons to 100 tons	1,036	47,143
100 ,, ,, 300 ,,	438	80,C02
300 ,, ,, 500 ,,	92	36,044
500 ,, ,, 1,000 ,,	150	110,403
1,000 ,, ,, 2,000 ,,	124	188,605
2,000 ,, ,, 3,000 ,,	120	296,017
3,000 ,, ,, 4,000 ,,	79	263,946
4,000 ,, ,, 5,000 ,,	27	119,067
5,000 ,, ,, 6,000 ,,	31	175,547
6,000 ,, ,, 7,000 ,,	13	82,078
7,000 ,, ,, 8,000 ,,	10	76,405
9,000 ,, ,, 10,000 ,,	6	57,039
Over 10,000 tons	6	72,604

It is interesting to note that all this fleet has been created since 1884. For a period of 218 years—from 1635 to 1853—the building of vessels over 50 tons net was prohibited, and it was not until the arrival of three U.S. ships at Uraga under Commodore Perry the government was awakened. A few ships of European type were built by some of the daimyos, but as the Japanese shipbuilders were ignorant of the proper methods they only imitated the outside appearance. In 1845 a Russian man-of-war was washed ashore and sunk by earthquake. The Russians, with the assistance of some Japanese shipbuilders, started building a wooden schooner at Heda,

which gave the Japanese their first opportunity of observing the actual construction of European vessels. It was not, however, until 1884 that Japan really began to build ships of iron, while the first steel vessel was laid down in 1890.

Refloating P. & O. Nile.—The work of refloating the P. and O. liner, Nile, which sank near the island Iwai, in Yamaguchi prefecture, will be started Tuesday. The Mitsu Bishi Company is in charge of the work. The Department of Communications has announced that ordinary steamers will not be permitted to pass through the region during the period.

Taikoo Dock is Busy.—Delivery is expected to be made this month of one or both the two steamers which are being constructed at the Taikoo Dockyard, Hongkong, to the order of the Straits Steamship Company. Upon their being launched, it is reported that the ways will be used for the construction of two new vessels for the China Navigation Company.

China Imp. & Exp. Lumber Co. in Yangtsze Trade.—The trial trip of the new steamer Tseangtah, built by the Kiangnan Dock and Engineering Works for the China Import and Export Lumber Co., Ltd., for the Yangtsze River trade, was highly successful, an average speed of 11.2 knots being made. The new steamer is especially designed for the economical handling of lumber and bulk cargo. It has winches and equipment to swing 15 tons at a time, and a tonnage of 767.47; net 294.15. Its length is 215 feet over all, beam 35.2, depth of hold 13.9, designed to carry 750 tons drawing 9 feet of water and 1,100 tons on 11 feet. The vessel's maiden trip bore out the expectations of the company whose "three tree" flag is now well known on the river.

Diesel Engine Tanker's Long Trip.—A remarkable tribute to Diesel-engine, oil-burning oil tankers is paid in the recent report of the Anglo-Saxon Petroleum Co., an English oil shipping concern, which now operates nine tankers of this type ranging from 500 to 2,200 horsepower.

Referring to the "Selene," a 2,200-horsepower vessel, in service since the fall of 1914, the report states the vessel recently completed a 14,300-mile voyage without taking on fuel at any intermediate port, proceeding from Cardiff, Wales, to Port Arthur, Texas, thence via the Panama Canal to North China and thence to Singapore.

"This would not be an economical procedure in the case of a coal-burning vessel," reads the report, "for it would mean giving over a considerable portion of the ship's space to fuel bunkers. The master of the 'Selene' had orders to replenish the bunkers at Shanghai, but he found his consumption of oil fuel on the run across the Pacific so moderate no additional fuel was needed. All told the 'Selene' steamed 54 days with a full cargo of oil and 12 days on ballast only without replenishing her fuel supply.

"It might have been reasonably expected that, in the course of the first six months running, defects in the machinery would become manifest, but the 'Selene' and her sister vessel, the 'Artemis,' were sent across the North Atlantic and Pacific in the depth of winter, as soon as they left the builder's hands, on runs which would probably have not been considered in the case of a steam vessel."

China Mail Adds Capital.—The China Mail Steamship Co., has decided to increase its capital stock from $2,100,000 to $5,000,000, owing to the many stock subscriptions coming in, and also to the end that the company may more readily acquire additional steamers. Look Tin-eli, president of the Canton Bank, of San Francisco, and president and general manager of the new company, has just announced the appointments of an assistant to the president and general manager and a general passenger agent.

Japanese Gain on Pacific.—The following figures show the number of ships and net tonnage, Japanese and American, in Pacific Coast ports and outward and inward bound in the Oriental trade in November 1914 and 1915. The figures were compiled by the foreign trade department of the San Francisco Chamber of Commerce:

November 1914 American steamers, 6, tonnage 45,315; Japanese steamers, 22, tonnage 89,932.

November 1915 American steamers, None, Japanese steamers, 42, tonnage, 141,262; Increase, Japanese 20, tonnage, 51,330; Per cent increase Japanese steamers 99.9; Japanese tonnage increase 57.0 per cent. It is reported there are from 25 to 40 Japanese steamers being built to secure control of the Pacific Ocean commerce.

New M. M. Steamer Porthos.—The S.S. Porthos belonging to the Messageries Maritime Co., which left Marseilles on November 28, on its maiden trip, arrived in Shanghai early in the month bound for Japan. This vessel, a sistership to the S.S. Athos, was also built in Dunkirk and has the following dimensions:—Length, 530 feet; breadth, 62 feet; depth, 45 feet; and displacement, 18,133 tons.

The engines develop 9,000 horse-power. An average speed of 17½ knots was realized. The first-class portion of the ship with dining-room, music room, smoking room finely decorated, can accommodate 94 passengers. The second and third classes are fitted out with spacious cabins for 96 and 100 passengers respectively. The between decks are able to take over 1,000 persons. The cargo is loaded into five hatches with electric cranes of the latest type. The owners have devoted close attention to the matter of life-saving appliances on board. A great number of life-buoys can be put overboard merely by handling an electric switch. The hull of the ship, entirely of steel, is divided into ten water-tight compartments. All of them can be shut simultaneously from the bridge by the officer of the watch in case of danger, so that the Porthos is practically unsinkable.

FINANCE

Philippine National Bank.—As soon as the officers and board of directors have been appointed by the governor general the organization of the Philippine National Bank will be undertaken immediately. The officers and board of directors will be named by the governor general within a month at the latest, and as soon as they are ready for business, the appropriation of the government is ready for instant use, while the treasurer will turn over to them the agricultural bank, according to the terms of the act. The bill as passed on February 5, provides for the establishment of two branches or agencies in the United States, as may be determined by the board of directors, and authorizes the establishment of branches in foreign countries. Under a proposal made by the governor general, P10,100,000 of government funds needed to supply the capital of the institution insofar as the bill stipulates that the government shall subscribe to the stock issue will be secured as follows: P1,800,000 from the assets of the agricultural bank, P1,300,000 from the insular surplus at present in the treasury, P2,000,000 from insular trust funds, this amount to be made available for the payment of the stock subscription during the present year, and P5,000,000 from insular treasury funds to be made available at the rate of P1,000,000 per year during the next five years. The question regarding the funds which are to come from the insular treasury was not decided insofar as the manner in which they are to be made available is concerned. If they are appropriated for the purpose, the insular surplus will be reduced in proportion, but if the chief executive can be authorized to invest the sums from the surplus in stock of the bank, it is believed that this seeming shrinkage of the surplus can be avoided.

P. I. Customs Decrease.—Figures given out early in the month at the Manila custom house bearing upon collection for January 1916 show that collections for the port of Manila amounted to P875,353.06 as against P955,256.01 during the same month in 1915, thus leaving a decrease of P79,902.95. A slight loss is also reported from Iloilo where the collections for last month amounted to P102,649.86 as compared with P105,793.03 in January 1915.

China's Communications' Budget.—According to the Budget of the Ministry of Communications for 1916, the following amounts of estimated expenditure have been provided for the extension of its activities in the three principal departments:—On account of railways $11,142,559; on account of telegraphs $2,939,380; and on account of posts $439,950. Total $14,521,889.

Japan's Russian Bond Issue.—The issue of Russian bonds of Y50,000,000 as advertized in the Tokyo and Osaka papers are for one year and bear interest of 5 per cent. per annum, that is, they are issued at 95 and redeemed after a year at par. Although the subscription is called for up to the 12th inst., it is generally believed that the general subscription will not reach that amount, in which event the underwriting banks will be saddled with the balance. The bankers are to receive 1 per cent as commission for underwriting. Therefore, the Russian Government have to pay 6 per cent in all. It is also reported that the money thus raised will be deposited with these banks as payment for the war material to be purchased here.—*Japan Advertiser.*

Committee Approves new Banks in China.—The bills providing for the establishment of the Japan-China Bank and the Bank of Manchuria were adopted at a meeting of the committee in charge of the measure in the House of Representatives February 14. The Bill for establishing the Manchurian Bank is composed of 38 articles and aims at facilitating the financial working for the development of South Manchuria and the eastern part of Inner Mongolia. The Bank is to be capitalized at Y10,000,000, which is to be divided into 200,000 shares. Its head office is to be located at Mukden. The Directorate will consist of a president, a vice-president, and three directors, who are all to be nominated by the Government from amongst the shareholders. Three auditors are to be elected at a general meeting of the shareholders. The Bank is to engage in the loan service on the security of real estate, its leasehold, railways, well-secured credits, national bonds, debentures, negotiable instruments, and goods, the deposit service, the discounting of bills, the collection of charges, the remittance service, the trust business, the transactions in bullions, the exchange of currencies, the agency for other banks, and the issue of debentures. The Government undertakes to supply the Bank for ten years with any deficit that the Bank may have to face for distributing an annual dividend of 6 per cent.

The Bill relative to the proposed establishment of the Sino-Japanese Bank has for its sole object the cementing of the economical relations between Japan and China and the

development of the Japanese economical interests in China. The Bank is to be established at Shanghai on a capital of Y20,000,000 which is to be divided into 200,000 shares. The Directorate is to be composed of a president, two vice-presidents, three directors and three auditors. A vice-president, a director, and an auditor may be Chinese. The Bank is to be authorized to issue transferable debentures, appended with interest coupons, of denominations above Y10, up to the amount of 10 times its paid-up capital. The workings of the Bank are to lie under the supervision of the Government. The Government is to furnish the Bank for ten years with funds, if necessary, to enable the Bank to distribute an annual dividend of 6 per cent.

Japan's Specie Holdings.—Owing to the trade balance last year which was favorable to Japan the holding of specie has greatly increased. It is reported that the amount at the end of last year was 512,000,000 yen in all, showing an increase of 171,000,000 yen compared with the year before last. Of this amount 130,000,000 yen was held in Japan, an increase of 2,000,000 yen and 382,000,000 yen abroad, an increase of 169,000,000 yen over the previous year. Classified as to holders, the Government held 152,000,000 yen showing an increase of 103,000,000 yen over the year before, and the Bank of Japan 360,000,000 yen, an increase of 68,000,000 yen.

Mysore's Improvement Budget.—The Mysore Budget estimates for the year 1915-16, as provisionally passed, were for a revenue of Rs. 2,74,02,000 and an expenditure of Rs. 2,73,70,000 under service heads, leaving a surplus of Rs. 32,000. There was further a grant of Rs. 66,35,000 distributed as under for special capital works:—

	Rs.
Cauvery Reservoir and allied works	25,00,000
Capital outlay on State Railways and Steam Tramways	26,35,000
Subsidised or Aided Railways ...	7.00,000
Bangalore Electric Tramways ...	6,00,000
Cauvery Power Scheme, IV Installation	2,00,000
Total Rs.	66,35,000

China's Banks Prosper.—A Chinese Press report states that the Ministries of Finance and Communications have received reports from the Bank of China and the Bank of Communications showing the profits of the Bank of China during the twelve months ended December 1915, to have increased $1,200,000 over the previous year, while the profits of the Bank of Communications during the same period show an increase of $800,000.

Tokyo Bills Cleared Show Big Increase.—There was a big increase in the amount of bills cleared in the Tokyo Clearing House for the latter half of the year, the increase being more conspicuous of late. According to the statement of the Tokyo Clearing House, the amount of bills cleared from the beginning of the year till December 25 reached 5,006,000,000 yen, the highest on record for many years past. As about 25,000,000 yen on the average is being cleared daily at present, the amount for the whole year is expected to reach over 5,200,000,000 yen, an increase of 700,000,000 yen compared with last year. The following shows the bills cleared in Tokyo Clearing House in past years:—

1905	Y 256,000,000
1906	350,000,000
1907	354,000,000
1908	296,000.000
1909	348,000,000
1910	384,000,000
1911	270,000,000
1912	412,000,000
1913	436,000,000
1914	449,000,000
1915	(Estimate) 520,000,000

Japan to Float Railway Bonds.—The Japanese Government, with the object of turning idle capital at home to good account has decided to float railway bonds of about Y20,-30,000,000 at home. The bill will be presented to Parliament as a supplementary Budget.

Japan Paying Loans.—The Government presented to the Imperial Diet the Supplementary Budget relative to the inclusion of Y38,600,000 in the sinking fund for the conversion of national loans, both foreign and domestic. Part of the 5 per cent. French railway bonds of Y77,400,000 redeemable within 12 years is to be paid back out of the sinking fund.

As to the flotation of the new domestic railway bonds, Mr. Kataoka (Chairman of the Budget Committee) stated that the bonds were to be issued at Y96 and Y97 net with 5 per cent. interest and to be made redeemable within 15 years.

P. I. Customs Decrease.—Gross customs collections for all ports in the Philippines except Balabac, for December, show a net decrease of P29,013.63 as compared with 1914, while the gross internal revenue collections on imported merchandise show an increase of P113,299.38.

MINES AND METALS

Seoul Mining Co., Korea.—The record of gold mined by the Seoul Mining Co., operating Tul Mi Chung and Suan, for the past 5 months is as follows:

Results for January, 1916:—Ore crushed, 18,745 tons.

Value bullion recovered	Y167,477
Value concentrates recovered ...	155,631
Total Receipts	Y328,108
Operating costs (Approximate) ...	Y100,000
Operating earnings (Approximate)	223,108

The following tables give the result of working from September to December, 1915:—

SEPTEMBER

Total operating receipts	G. $58,912
Less operating costs	27,500
Net operating earnings ...	G. $31,412

OCTOBER

Total operating receipts, Suan mine	G. $48,959
Total operating receipts, Tul Mi Chung mine	19,300
	68,259
Less operating costs (approximate)	45,000
Net operating receipts	G. $23,259

NOVEMBER

Total operating receipts, Suan mine	G. $59,095
Total operating receipts, Tul mi chung mine	28,955
	88,050
Less operating costs (approximate)	55,000
Net operating earnings ...	G. $33,050

DECEMBER

Total operating receipts, Suan mine	G. $100,434
Total operating receipts, Tul mi chung mine	22,550
	123,984
Total operating costs (approximate)	65,000
Total operating earnings ...	G. $57,984

JANUARY, 1916

Tons Ore Crushed, 16,745 tons.

Value Bullion Recovered ...	Yen 167,477.00
Value Concentrates Recovered	Yen 155,631.00
Total Receipts	Yen 323,108.00
Operating Costs (approximate)	Yen 100,000.00
Operating Earnings (approximate)	Y223,108.00

The Luhokow Coal Mines.—A mandate issued on February 12 appoints Mr. Chang Cheng-fang, who is at present Chinese Director-General of the Fu Chung Kung Shih to be Director of the Luhokow Coal Mines in Honan. Originally, these mines belonged to a British concern, but they were later converted into a Chino-Belgian enterprise. The mines, which are situated in Changtehfu, are now entirely owned by Chinese capitalists with a certain proportion of capital supplied by the Central Government and the Honan provincial government.

Japanese at Hangchow.—Reports are that an enterprising Japanese is about to commence an iron foundry in the Settlement for the manufacture of silk-weaving and pattern-cutting machinery, of which at present quite a lot is imported from Japan.

Rich Silver Mine.—A silver mine at Pao-ching, Honan, has just been discovered. The ore contains 25 per cent of silver and 50 per cent of zinc, reports a vernacular paper. The local gentry are arranging for capital to operate the mine.

Japan's Hardware Market.—The effects of the war are daily enhanced in the hardware market and buyers are compelled to pay double, or in some cases three times, the prices paid last year. Enamelled hollowware is heavily demanded not only by British India, the Dutch Indies, and other Asiatic countries, but by Russia, France, and other European countries, which before the war sold such goods to Japan. Accordingly the Tokyo Hollowware Wholesalers' Association passed a resolution a few days ago that prices would be raised by 30 per cent.

Aluminium, copper, tin, and other ware is rising. Agricultural implements also have been affected by the boom in the metal market and there is a similar boom going on at the expense of farmers.

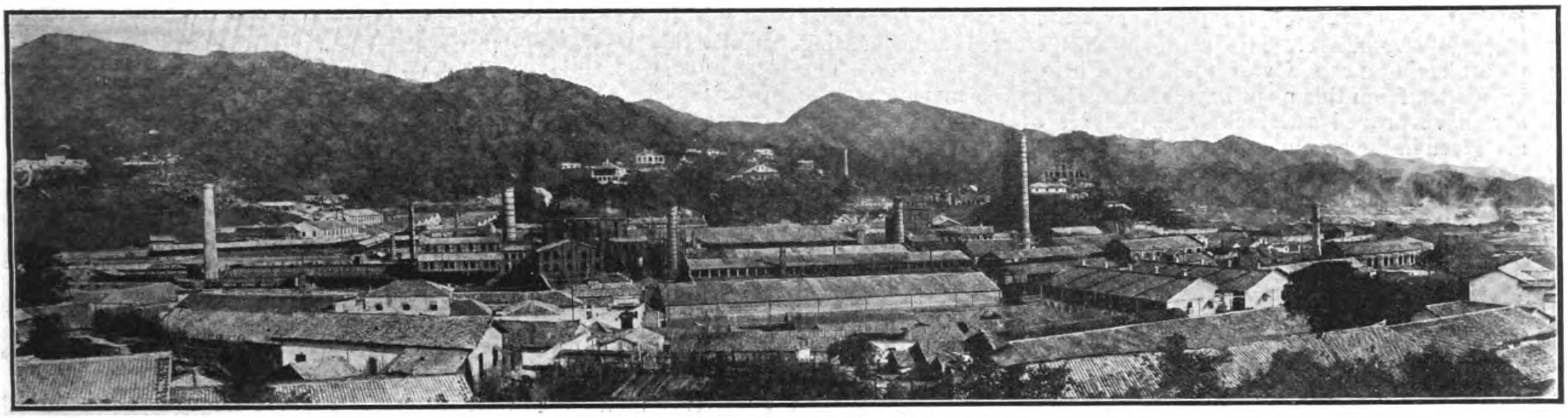
F.M.S. Gold Production.—The gold production in the F. M. S. during the last year amounted to 17,446 ozs. and was valued at $67,604. In 1914, the figures were 14,272 ozs. and $55,306 respectively.

Tungsten in Japan.—A very rich vein of tungsten has been discovered in a long range of hills in the Yamaguchi prefecture. According to the investigations conducted by the expert despatched by the Tokyo Imperial University, the vein now discovered is probably the largest ever found in the East and the ore obtained there is of very excellent quality. Experts from the Department of Agriculture and Commerce, too, are now on the spot to ascertain the extent of the vein and the quality of the ore obtained. In view of the increasing value of the ore as munition material the Government, it is learned, will undertake the working of the mine on its own account, instead of permitting private enterprise to prospect the ground.

THE FAR EASTERN REVIEW

COMMERCE :-: ENGINEERING :-: FINANCE

VOL. XII. SHANGHAI, MARCH, 1916 No. 10



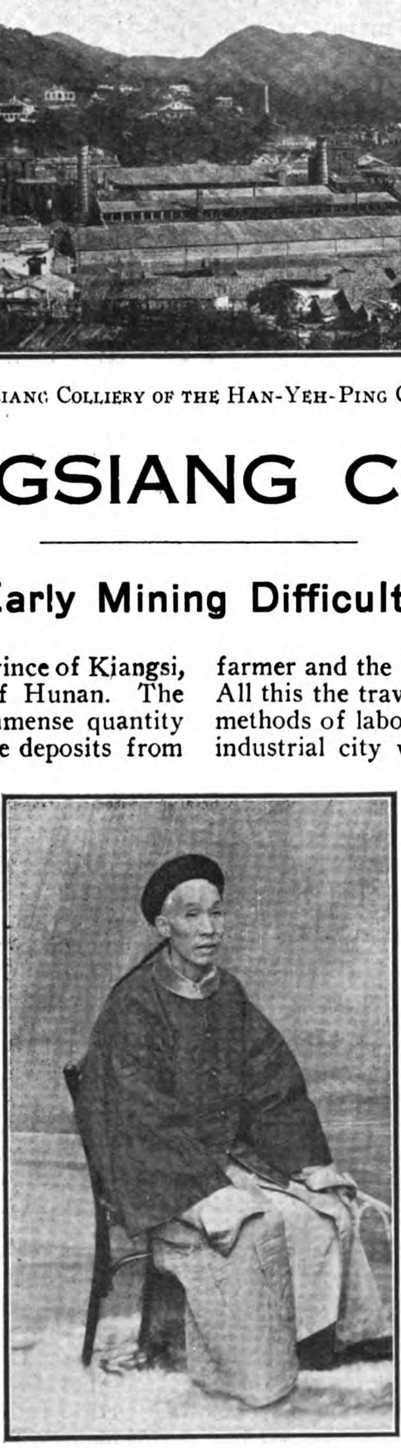
PANORAMA OF THE PINGSIANG COLLIERY OF THE HAN-YEH-PING COAL AND IRON COMPANY

THE PINGSIANG COLLIERY

A Story of Early Mining Difficulties in China

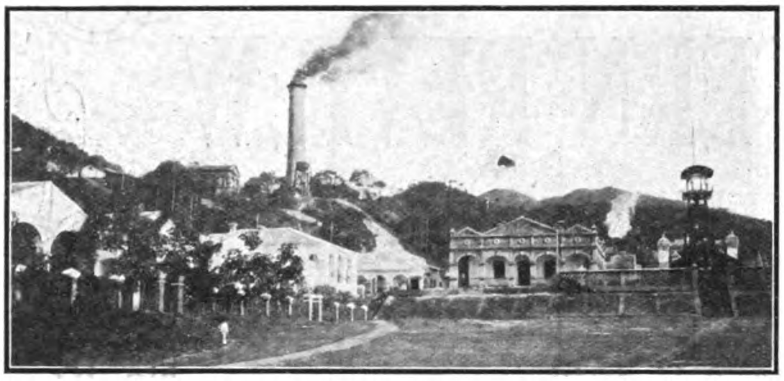
The Pingsiang Colliery is situated in the Province of Kiangsi, close to the eastern border of the Province of Hunan. The locality has always been known to contain an immense quantity of coal, and the Chinese in the past dug into these deposits from the surface at points on the outcrops so far as their superstitions would permit. At this time of writing the viewpoint of the natives has been greatly expanded and fear of the earth dragon ascending from holes in the ground is no longer an excuse for backwardness in developing the mineral resources of the country. When the Pingsiang colliery was opened the trials and tribulations, were, however, constant and varied, as is recounted by Mr. Gustavus Leinung, the Manager. To open the mine some $3,000,000 were borrowed from Germany, but that loan has now been paid back and the property is entirely owned by the Han-Yeh-Ping Coal and Iron Company, though certain loans which were contracted after the Revolution of 1911-12 remain outstanding.

"It is a surprise to a stranger," writes Mr. K. P. Swensen, "to visit this mining camp. Riding over the railway from the Siang River to the mine, he is given a magnificent perspective of the typical Chinese landscape in a prosperous rice-growing section. From the mountain heights, irregular small ranges succeed each other into the valleys to blend with the foothills in a maze of terraced rice fields. One marvels at the thrift of the Chinese farmer and the intensive culture to which he is forced to resort. All this the traveller looks upon and wonders at the still crude methods of labor, when he suddenly finds himself thrust into the industrial city with its multitude of chimneys and substantial brick buildings, which have been built on such a modern scale by the Pingsiang Colliery Co. As the mine is in the heart of China, far from the source of machinery supplies and the like, it is necessary to keep complete repair shops as well as shops equipped to manufacture, as far as feasible, all necessary machines and appliances. This saves the time and expense incidental to ordering from abroad. There is a large round-house to accommodate the dozen or more locomotives and a large railway machine and repair shop. In the main machine shop are manufactured steam engines, compressors, pumps, lathes, and in fact almost everything in the heavy machinery line except electrical machinery. A foundry in connection turns out castings up to three tons weight.

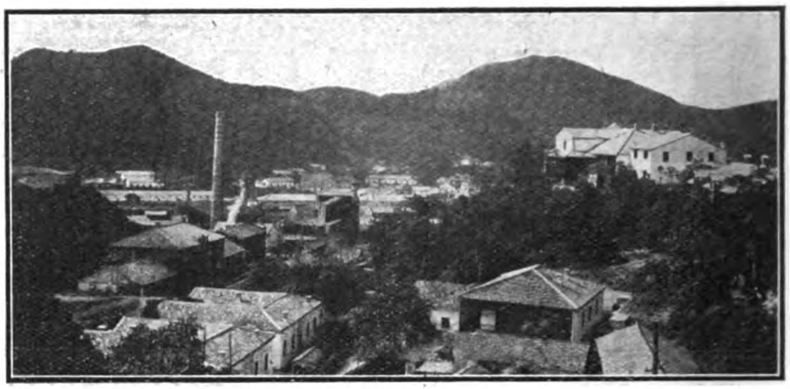


CHANG SHOU-CHAN, THE COMPANY'S FIRST MANAGER

An important adjunct is a series of coke ovens along the railway tracks. These ovens are of the Otto-Koepe type, of which there are 300 in operation. Almost all the coke is supplied to the blast-furnaces of the Hanyang Iron & Steel Works at Hanyang The coal used consists of the fine material saved from the washing plants and runs not over 10% ash and under 0.05% sulphur. In appearance the coke resembles that produced



PINGSIANG COLLIERY—HEAD FRAME FOR MAIN SHAFT



GENERAL VIEW OF PINGSIANG

in the by-product ovens of the United States with a somewhat more silvery lustre. The company has erected a briquetting plant, having a capacity of 200 tons of briquettes per day. The briquettes from this plant have been tested in the marine service and have proved satisfactory. Analyses of the coal and coke are given in the accompanying table:

ANALYSES OF PINGSIANG COAL AND COKE

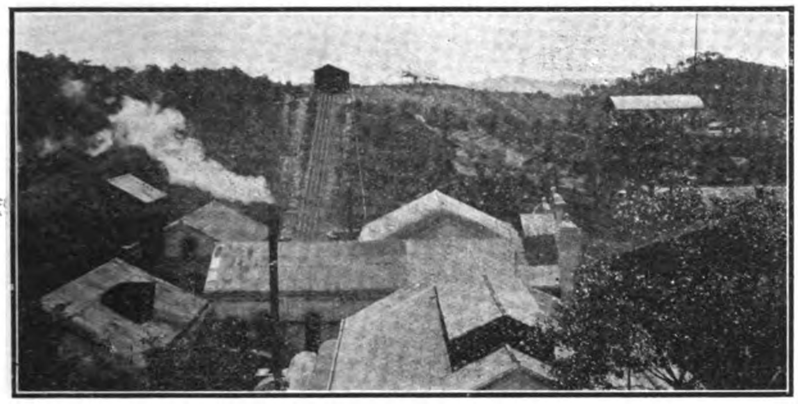
	Foundry Coke	Smelting Coke	Navy Coal	Washed Coal	Run-of-Mine Coal.
ANALYSIS IN THE CRUCIBLE					
Fixed carbon	87.941	88.060	60.167	59.921	54.118
Volatile	——	——	30.290	24.240	23.490
Combined water	1.119	0.840	1.953	1.149	1.392
Ash	10.940	11.100	7.590	14.690	21.000
ELEMENTARY ANALYSIS					
Carbon	83.520	84.252	79.239	75.330	70.758
Hydrogen	1.067	0.744	5.099	4.891	4.012
Sulphur	0.506	0.618	0.547	0.522	0.527
Oxygen	1.833	1.480	4.102	2.241	1.107
Nitrogen	1.015	0.966	1.470	1.169	1.204
Hygr. water	1.119	0.840	1.953	1.149	1.392
Ash	10.940	11.100	7.590	14.690	21.000
ANALYSIS OF THE ASH					
Silica	62.040	60.820	49.040	60.520	65.700
Alumina	26.360	27.640	25.690	24.979	24.890
Oxide of iron	5.960	6.100	16.430	3.840	3.770
Lime	3.410	3.200	5.340	6.340	2.860
Magnesia	1.770	1.850	2.800	3.400	2.220
MELTING POINT OF THE ASH					
The ash melted at °C.	1350	1450	1200	1250	1355
HEATING-POWER AND EVAPORATIVE EFFICIENCY					
Capacity of heat (Cal.)	6977	6962	7690	7402	6815
Quantity of steam at 100°C. produced by 1 kg. of Pinghsiang coal from water at 0°C. (kg.)			12.07	11.62	10.69

The mine is opened by a principal adit 3000 metres in length, and by another short adit which connects with a main working-shaft 170 metres in depth, and a ventilating shaft 110 metres deep. The shafts are round in section, brick-lined, 4½ metres and 4 metres respectively in diameter. Recently a large Fraser & Chalmers hoisting engine with reel and flat rope has been installed preparatory to deep sinking. At the present time all the coal mined comes out through the adits. The beds are now being opened continuously downward and the shafts are to be increased in depth as required. In the main haulage ways trains of cars are drawn by electric locomotives of 10, 40, or 50 hp. each. These were the first electric locomotives used in China and were started in the year 1906.

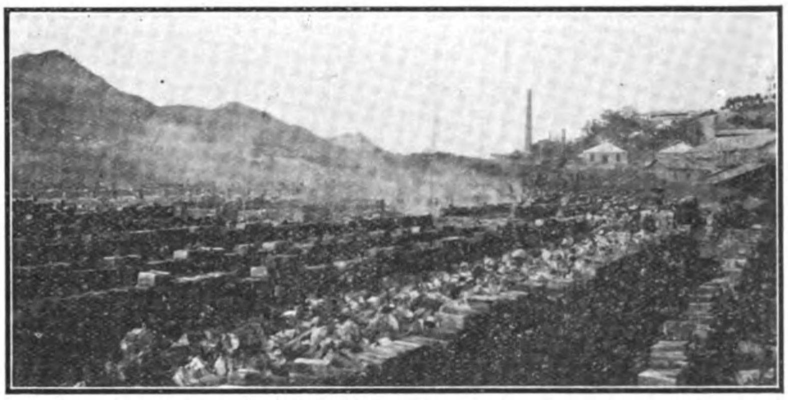
A feature of the surface operations is two coal-washing plants that were found to be necessary in the production of a grade of coal suitable for coking purposes. The coal is sent over shaking screens which give 4 sizes after the lump is run off over a 30 mm. screen. The material is then washed through a series of coarse to fine jigs, the light products of which all go to the coking ovens while the waste is discarded. This waste is given to independent Chinese coke manufacturers who re-wash the material by hand and turn out large quantities of good grade coke in simple rectangular ovens. This coke is sold for fuel. Fire-bricks of all grades and sizes are manufactured here and are of use especially for the coking plant and the furnaces in the steel works at Hanyang. A large amount is sent into the Oriental market and the demand for the brick is steadily increasing.

The country rock consists mostly of soft sandstone, and in the mine itself is found a hard limestone with many bands of slate and shale, as well as a large amount of soft clay partings in the coal seams. A great amount of development has been accomplished, and while the real life of the mine is largely conjectural, workable coal reserves have been developed to an extent that gives assurance of a supply that will last several hundred years with an output of 1,000,000 tons annually. The coal is bituminous, there being a hard and a soft variety. The hard coal is found in the smaller seams, those that are worked running from 15 to 75 centimetres in thickness. For the extraction of this coal it is necessary to take out a large amount of slate, most of which cannot be used for filling, but must be conveyed to the dump on the surface from the mouth of the mine. There are 8 inclined tracks running to the slate dumps which are already of immense size. Such a mine as this could not be worked profitably in the United States on account of the high percentage of slate since the labor cost and the cost of washing would be prohibitive. In China, however, miners are paid less than 13 cents gold per day, so that the labor cost is relatively low. There are three hard coal seams of large extent having a pitch of about 12 degrees, which are from 3 to 6 metres apart. They are mined by the ordinary long-wall method, in which the entries are run with the dip and along the strike and all the coal is extracted while advancing. This system of long-wall mining is also used in the soft coal seams, of which there are six. These seams vary in thickness from 3 to 12 metres. Drifts are run for the purpose of ventilation every 20 to 25 metres along the haulage-way and connection made about 70 metres distant from the main gangways to provide the air circulation. In the thickest seams blocks are removed to 3 metres in thickness, and, while the roof is supported with props, the open space is filled with waste and the second cut proceeded with.

The greatest difficulty is found in the maintenance of haulage and passage-ways, because of the tremendous pressure. This makes timbering an expensive item, for the timbers must be constantly replaced. No attempt is made to relieve the pressure on the main timbers by providing auxiliary sets as is sometimes done for swelling ground in America. The roof is allowed to fall until it becomes low enough to interfere with the workmen, when it is cut down and new sets put in. This happens as often as once every four months in certain parts of the mine. The main haulage-way is lined with brick with an



PINGSIANG COLLIERY—VERTICAL SHAFT AND SLATE DUMP



PINGSIANG COLLIERY—CHINESE COKE OVENS

arched roof where the pressure is greatest. At other places the roof is supported by steel rails and lagging with brick walls. In the endeavor to maintain permanent haulage-ways where the pressure is great, as many as 10 courses of brick have been used in the arches and in many cases these have failed and crumpled under the pressure. This is the only way the engineers have of ascertaining the relative pressure although such trials are very expensive. In the matter of handling the labor, the management has found it an advantage to let out the greater part of the work by contract to Chinese foremen. It is a policy that is found to be particularly successful with the Chinese. They must be driven to doing right and habitually disobey orders unless constantly watched. The mining of the coal is done at a stipulated price per ton, varying with the conditions of mining, and the contractor must guarantee a minimum of 10 to 12% ash, before his output is accepted. Timbering and tunneling is done at an agreed price per metre. The coal and coke are dumped into steel cars and conveyed over standard track to the port of Chu Chow at which point, along the river, are lined up steel and wood lighters, with barges and junks of various description. These are towed to Hankow by the company's tug-boats in lots of about 1200 tons. The handling of the coal affords an instance of how necessary it is to adopt methods to suit conditions in a strange country. There is no need for the use of large capacity automatic-loading devices such as are used in America, for in China labor costs but about one-twentieth of what it does in America. The coal, after being dumped on the ground along the track in great piles, is conveyed by coolies who use carrying-poles with baskets attached, holding perhaps a bushel each. There are several hundred of these men constantly at work moving from 1800 to 2000 tons of coal and coke per day from the railroad into the barges.

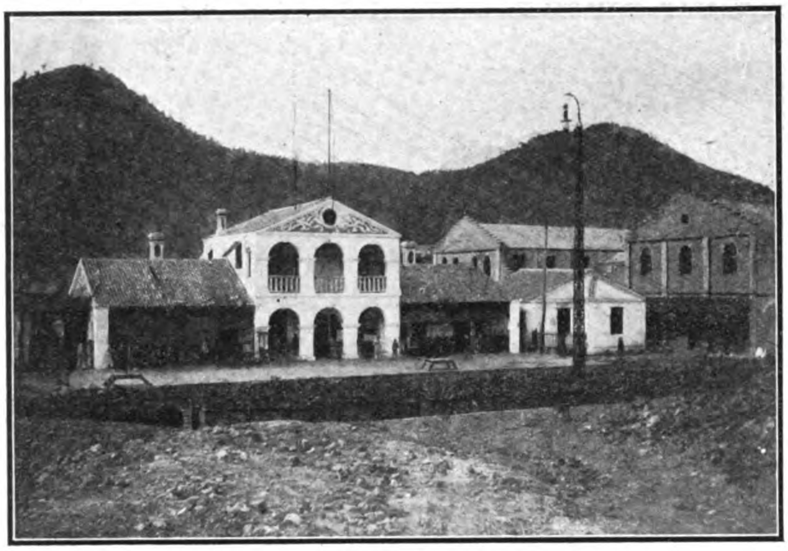
Transportation is handicapped during the winter season because of low water in the upper Siang River. This difficulty will be eliminated as soon as the railroad now under construction is built. A feature of the Pingsiang Colliery Co.'s operations is the growth and progress, these being evident in the output, in the resultant enlargement and improvement of the plant. The engineers and managers endeavor to turn out highgrade products. The success of the company furnishes an example for future undertakings and gives an insight into what may be expected from the eventual development of China's immense mineral and coal deposits."

The Early Difficulties

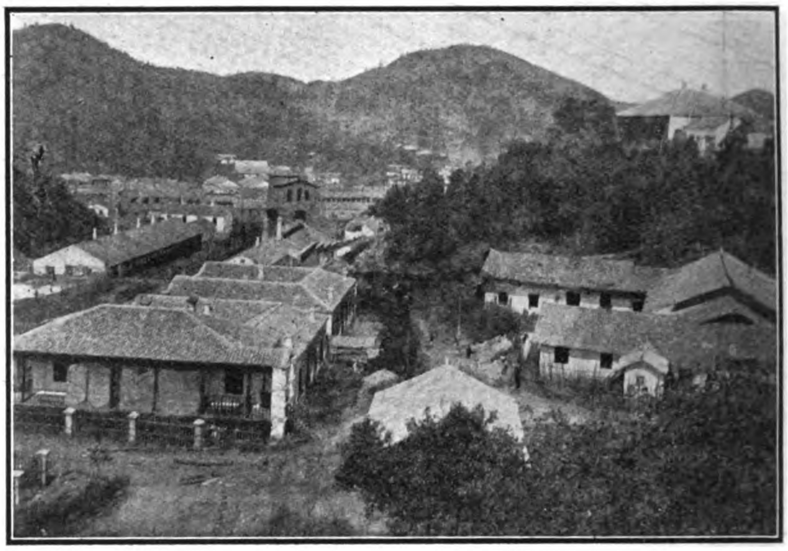
An interesting history of the mine has been furnished us by Mr. Leinung. He first went up to Pingsiang in 1896 for preliminary investigations, but it was not until 1898 that the mining operations really started. Mr. Leinung was alone for the first two years and had to do the geological, survey, planning and architectural work. Upon his first arrival at Pingsiang he was an object of awe and amazement to the natives who had never seen a European. All sorts of beliefs were held about him. He was said to have three eyes, one at the back of his head, and it was believed that he could see deep into the bowels of the earth and detect the treasures there. When he entered Pingsiang for the first time in 1896 the natives were sitting on the roofs of houses to see him. He was put into a small room in an ancestral hall in which there was a grated window, and the people were allowed to come along in squads of 10 or 12 to have a look at him, as though he were a rare zoological specimen. The idea was to make them accustomed to the appearance of a foreigner. During the first year there were always 200 soldiers around Mr. Leinung. He was not allowed to leave his quarters and had strictly to obey orders. At this time there was very strong anti-foreign feeling in Hunan and he had to journey to Pingsiang via Nanchangfu and Kiukiang as Hunan was forbidden to foreigners. Two years later he had to leave owing to riots and murders of missionaries.

When Mr. Leinung journeyed to Pingsiang through Hunan in 1900 the windows of his house boat were shrouded with blinds as he passed Changsha so that no one could see that there was a "foreign devil" within. He had a very exciting time for the first year, with the strong anti-foreign sentiment prevailing all round him. On one occasion one of his servants came to him with a placard which had been pasted up outside his house urging the people to kill the foreigner and all the Chinese with him at Pingsiang, and the servants, not unnaturally, became very frightened.

At first he employed men from Luyang as miners, then men from Hunan, and eventually men from the Tayeh iron ore mines; men whom he knew. In each case, however, the result was unsatisfactory. The local men were opium smokers and did not want to work regular hours. The men from Luyang were a disorderly, lawless lot, and those from Tayeh thought that they could draw their pay without working. Very often Mr. Leinung was almost despairing and felt inclined to drop the attempt to open up the mine. For the first six months he had depended upon his interpreter, but the latter had failed to handle the men properly. In the meantime Mr. Leinung had learnt a little Chinese and he determined to put the interpreter on one side and negotiate himself with the better men whom he had picked out. He asked these men to work by contract which they refused to do before, preferring payment by the day. Mr. Leinung took the most reasonable of the men aside and showed them that they could make more money by working by contract. They agreed, and gradually he succeeded in making a start on this basis. In the beginning he followed the invariable practice in China and took a compradore to manage all the details. The unfortunate result was that as the work grew greater and the number of miners larger the compradore could not personally superintend his men and get the proper amount of work out of them. The contracts which Mr. Leinung made with the contractor or compradore were drawn up on similar lines to those with which Mr. Leinung was familiar in his own country, but the contractor had engaged his men on daily wages and could not supervise their work properly. The result was that he began to lose money and Mr. Leinung had to point out to him that it was impossible for him (Mr. Leinung) to pay more than was named in the contract. The contractor got deeper and deeper into debt with his men. It was now approaching Chinese New Year, when, as is generally known, all Chinese are supposed to pay off their debts. The miners insisted upon the contractor paying them, but as he had no money he told them that the fault was with the foreigner who did not pay him enough money. Then came the first strike at the Colliery. The men beleaguered Mr. Leinung's house and



PINGSIANG COLLIERY—RAILWAY STATION AND THE WORKS YARD



PINGSIANG COLLIERY—HOSPITAL AND OFFICE BUILDINGS

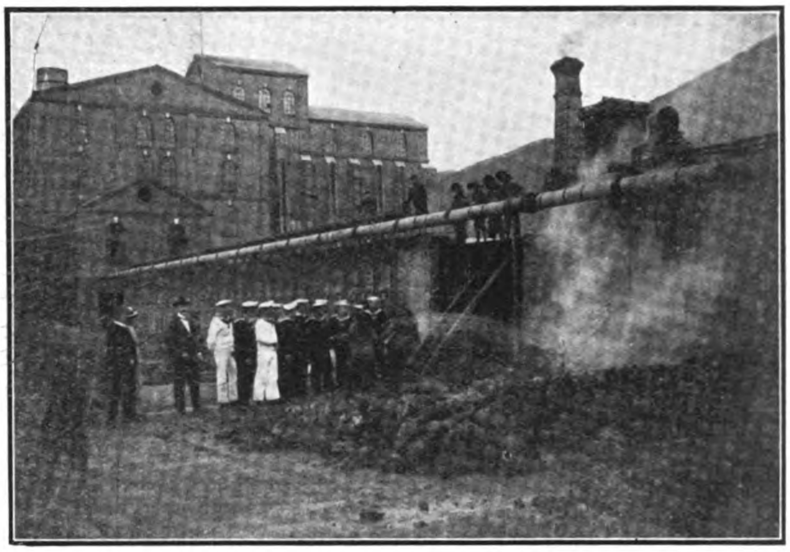
demanded money, which of course he refused to pay. That strike lasted for three days. Mr. Leinung took advantage of it to break the power of the contractor, because he saw that it would not be advantageous to do the work through a single contractor. He decided that it would be better to have individual contracting parties at the different working places.

At this time he had about 200 miners and about 20 working places, most of which, of course, the contractor could not superintend, not being an experienced miner. At that time with so small a body of men Mr. Leinung knew almost every one individually and knew their capabilities—good and bad. He took the opportunity to persuade the workmen that it would be to their interest to take contracts for a single working place by themselves. He offered them in the last moon of the year for that month such contracts that they could earn as much in one month as the contractor would pay them in four or five months. Mr. Leinung wanted to gain his point and that was what dictated this offer. Many of the better miners were allured at the prospect of earning so much money and consented to take the individual contracts. On the third day he got all of the men who had accepted the contracts into his office, made them an advance payment and had the necessary tools delivered to them. Mr. Leinung and his assistant were in the office at 9 o'clock making the final arrangements with the miners and just when he thought that everything was satisfactorily arranged some miners came in with bleeding heads. These were some of the men with whom he had already settled the individual contracts and who had gone to work. These men kowtowed and asked to be excused for not going on with the contract as they would be killed by the other miners if they did. Mr. Leinung decided upon quick action and told his interpreter to tell the soldiers to arrest the men who had attacked the contractors. The soldiers refused to venture among the crowd, being afraid. That made Mr. Leinung more furious and he declared that if the soldiers would not go he would go himself. He was warned not to do so as the people were in an ugly mood and he would only endanger his life. He insisted upon going and armed only with a strong miner's oak stick and accompanied by the assistant engineer he set off for the men's quarters. Some soldiers followed. When he reached the men's quarters he was saluted by yells and threats and the position was anything but pleasant. But knowing that if he showed any fear he was lost he summoned up all his courage and went right up to the mob and, taking an elevated position, began to address them in as good Chinese as he could command. He knew enough to make them understand. In his address he pointed out that after he had made satisfactory arrangements with the men who really wanted to work some mischief-makers had attacked the men and threatened others who wished to work. Moreover, he told them, the contractor had not been able to pay them because he was not able to get them to do the amount of work corresponding to the daily wage he agreed to give them. He had himself been a miner and they could not fool him. The contracts given to the contractor were fair and the amount of work could be done. They were similar to contracts in foreign countries where the miners made from $ 1.50 to $ 2.50 per day. The contractor had made nothing out of the contracts, but had lost money and was unable to pay them simply because of their own laziness. He again offered them individual contracts which would enable them in one month to make up all the money the contractor owed them. At 6 o'clock the following day he would go to the mine and he expected to see them in their working places and then final arrangements would be made.

When Mr. Leinung finished his speech there was shouting from some quarters, and demands that before there were further negotiations he should pay over the money owing by the contractor. He knew the men who called out as a lazy lot of useless fellows who had always been an encumbrance. Accordingly he caught hold of the one nearest by the queue, made the others—about six in number—come and stand beside them. Then he told them flatly that they were a set of useless rascals and that his offers were not for them. He had no use for them and told them that they had to clear out. He ridiculed them, and the other Chinese, who knew that Mr. Leinung had judged fairly about the capacity and character of these men, began to laugh at them, and the victory was practically won. The next morning he found the men in the working places and by noon had everything settled and could leave the mine.

A new start was made the following day with satisfactory results. Everything went well for about a year, the men making good wages. The mine grew bigger and a much larger number of men were employed. By the time Chinese New Year came round the gang leaders had gradually developed into contractors, who ceased to work themselves but fed and housed the men and "squeezed" them. These gang leaders only visited the mine on the first of the month to make contracts and on the fifteenth, pay day, when they appeared in gorgeous silk attire, being carried from Pingsiang city in sedan chairs. The rest of the month they spent enjoying themselves in the city, letting the men work for them. This did not please Mr. Leinung at all and he realized that he now had to break the power of these contractors. The only way in which the power of the contractors over their men could be broken was by quartering the miners in houses belonging to the mine and feeding them at the cost of the mine. In the first place, therefore, huge mining quarters with kitchens and stores had to be built. Then the individual control and payment of the miners had to be provided for. The quarters were almost completed by the next Chinese New Year and the miners were informed that every one should get his pay according to the work done, and that no man would have the right to squeeze other men. Early in the New Year he received a written protest from the 63 gang leaders in which they told him that all the miners protested against the innovation as they were afraid that they would not get proper quarters and good food. Several hundred of the miners, the protest declared, would go on strike

Pingsiang Colliery—Major Bowley, United States Military Attache, and Manager Leinung (in white) after a visit of inspection



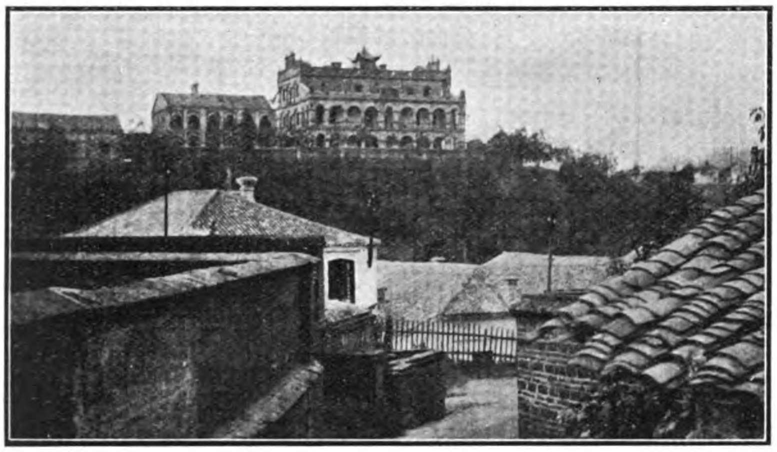
Pingsiang Colliery—Cooling Coke from the Ovens

if this innovation was to be made. As Mr. Leinung had built the quarters and had made all preparations for feeding the men he was naturally very angry at this opposition. As a matter of fact he knew that the greater proportion of the miners welcomed the innovation and were rejoiced at the prospect of being no longer squeezed by the gang leaders. It became necessary to find out who were the ringleaders in connection with the protest and to make an example of them. Early in the month when work was commenced he went from gang to gang finding out the men who had instigated the protest. One man who was charged with being a ringleader became frightened and said that he was compelled to sign the protest, although he did not wish to do so. It leaked out that on the fifth day of the New Year the miners had been assembled at a temple near by and that one of the gang leaders had addressed them telling them that the proposed innovation was against their interests and that they should combine to protest against it. The usual thing happened; the crowd went with the agitators and the aid of a *literati* had been invoked to draw up the protest. They all swore not to betray each other.

Mr. Leinung asked the men at the head of each gang whether they would work under the new system and they all agreed to do so if the others did. After three days the list of men who had thus agreed included most of the gangs working in the mine. Then Mr. Leinung went to the man whom he had all along suspected to be the ringleader, paid him off and told him to leave at once. The next month the miners' quarters were ready and the innovation was made without a hitch. The miners liked it immensely.

All went well for another year, but the number of miners and the output steadily increased and the cupidity of the miners was again stirred. They began to pay no attention to the quality of the stuff mined and expected to be paid for anything they sent out. There was constant trouble about this, and it became evident that something would have to be done. Mr. Leinung went to Europe about this time with Dr. V. H. Lee to assist him in matters connected with the Hanyang Iron Works, and during his six months' absence things had to be left to the assistant engineer, who had no knowledge of how to deal with Chinese. Before leaving, however, Mr. Leinung gave him full instructions that all coal that came out of the mine should be taken to an assembly station. He had this arranged so that on his return the assembling of the coal could be started. Some of the seams are pure while the miners turned out stuff with 45 per cent. of ashes as coal and the coal washeries were not sufficient to deal with it. During Mr. Leinung's absence conditions became worse among the miners. Soon after his return from Europe the contracts were fixed at so much per ton or per truck for coal containing a reasonable average percentage of ashes and for every one per cent more ashes one or more cents was to be deducted from the contract price per unit. He had proved to the men that they could turn out stuff with not more than 20 per cent. of ashes and had told them that he would give 20 cents per truck and deduct 1 cent for every one per cent. more than 20 per cent. of ash so that if there were 40 per cent. of ash they would get nothing. During Mr. Leinung's absence the engineer in charge does not appear to have handled matters very judiciously and he was dismissed immediately after Mr. Leinung's return from Europe. This meant that he had an assistant new to the place and conditions, when this rule was introduced. The new man was eager and energetic and anxious to show his ability. The first month the new rule came into force Mr. Leinung was called to Shanghai, so that he was absent when the payments for the month had to be made to the miners. Now the miners had ignored the rule and had continued to produce dirty coal, with the result that when pay-day came they had no wages to draw. There were about 2,000 miners employed at this time. Not unnaturally when they were told that they had earned nothing they were very discontented. The new man handled the situation injudiciously and the miners became enraged. They sent a deputation to his house and they complained that if they got no money they could not live or send money to their families. This discussion took place outside the engineer's house and he became frightened at their attitude and went inside. Stones were thrown and this was the signal for a general attack on the houses of the foreigners. Windows and furniture were smashed, and the situation became serious. The acting Chinese mine manager, the mine manager being absent, gave orders that the engineers should escape to the railway station where a locomotive was ready to take them to Liling, the then terminus. This they succeeded in doing, and in the meantime a telegram was sent to Mr. Leinung telling him of the disturbances at the mine. He was very anxious for the safety of his men and asked his Consul-General what to do. The despatch of a gun-boat was suggested, but this idea was not adopted and Mr. Leinung himself started to return to the mine. In the meantime the old manager had returned. Being a sagacious man he succeeded in appeasing the miners, and the engineers who had fled were able to return to the mine before Mr. Leinung arrived. None of them, however, was allowed to enter the mine before he came. When he arrived he told the men that it was not his intention not to give them any money, but they must understand that coal and not stone was wanted. He would prove to them by taking samples at each of the working places that it was possible to produce clean coal. As Mr. Leinung had great influence with the miners and was looked upon as the "Father of the Mine" the men acknowledged the force of what he said and a compromise was arrived at. It was not, however, safe to let the other foreigners go into the mine for several days. The men were treated more leniently on the next pay-day, and they gradually became accustomed to the new rule and the percentage of ash was reduced from 40 per cent to 20 per cent.

One great mistake had been made whilst Mr. Leinung was away in Europe and that was allowing too many miners



Pingsiang Colliery—Administration Building

Pingsiang Colliery—Loading Coal from Cars to Barges

to be employed in the mine and also allowing eight hour instead of twelve hour shifts. It became necessary to rectify the hours of the shifts in order to get more work out of the men, and also to reduce the number of miners. The amount of work done per head was less than one-fifth of what foreign miners could do. Mr. Leinung was convinced that he would get much more work out of the men if he reverted to the twelve hour shift and reduced the number of men. This was in the year 1906. The men were quite satisfied to revert to the 12 hour shift, which had been the original system. In June, 1906, the 12 hour shift system was reintroduced. This was the time of the great floods in Hunan, when the water was up to the roofs of the houses in Changsha. It rained from October, 1905, to June, 1906, and the water in the mine greatly increased. Sufficient provision in the way of pumping plant had not been made, but what pumps there were kept working night and day. No time could be spared for any repairs to the pumps and there was a constant danger of a breakdown.

On the evening of June 10, 1906, when Mr. Leinung was at dinner the engineer in charge of the mine pumps came in and declared that the mine was lost as two pumps on the lowest level had broken down and it was impossible to get them repaired. After many days of ceaseless toil the danger was averted, but on pay-day a big strike among the miners who objected to the reversion to the twelve hour shift and to the dismissal of some 500 miners, was announced, and which lasted for three days during which time of tension a locomotive with an empty car was in readiness for the foreigners to make a start at any time.

On the fourth day work was resumed. The miners had consented to go back to the 12 hour shifts, but the foreigners were warned that if they attempted to introduce any other innovations all the miners would go on strike. Everything went on smoothly for the next few months, but in November troubles broke out in the neighbourhood and a revolution was apprehended in the country north of Pingsiang city. That was at the time of the Triads rebellion. Placards were posted on the walls of Liling and Pingsiang calling upon every one to rebel against the Manchu Government and every day decapitation of suspects took place at Liling and Pingsiang. Rumours were spread at that time to the effect that foreigners were getting the eyes of Chinese children to use as medicine. On the night of December 7 all foreigners were urged to leave that night. A locomotive and car were waiting at the station. The rebels had already taken a place about 90 li distant and were then on the march for Pingsiang city. The path they would follow lay for the last 30 li from Siangtung along the railway line, and it was to be feared that they would burn the timber bridge at Siangtung. A little after 2 a.m. they started, expecting to find the bridge at Siangtung in flames, or to meet the rebels on the way. The foreigners carried rifles for their defence, if necessary. The necessity fortunately did not arise, and they got safely to Changsha, where the party stayed for a month on house boats. During this month they received word from time to time from the colliery that the manager had taken energetic steps to secure peace and that soldiers had arrived from Changsha and Wuchang. Military law was prevailing at Pingsiang and decapitations were going on by the dozens day by day.

About January 5 they started back to the mines, and on arrival found that only 300 out of 2,000 miners were left though actually the mine itself had suffered no damage except the interruption of output. Work was resumed with a better class of miners and the undesirables had been got rid of by this disturbance.

From this time there was steady progress at the mine, and the number of men and output grew bigger and bigger as the men grew more experienced under foreign training. Nothing happened to interfere with the normal course of events until the revolution of 1911. This of course brought the foreigners into a critical position. They had heard of the rebellion at Wuchang and all sorts of rumours were afloat. They did not know what had become of the foreigners at Hankow. Then they heard that the disturbance had spread to Changsha and on October 22 at 9 p.m. the foreigners were warned that as Changsha was in the hands of the revolutionaries and no one knew what might happen to foreigners they must leave. They left at 3 a.m. and on the morning of October 24 they arrived at Hankow.

The affairs of the company were naturally in great confusion. Sheng Kung-pao had been cashiered and had escaped from Peking to Tsingtao; the Hanyang works were stopped on account of the fighting and all the tugs and lighters had been seized by the revolutionaries. There were no funds in hand. A temporary office was opened in Shanghai, all the miners were paid off, only the officials and a sufficient number of men to keep the mine in order being retained. The output, of course, was stopped entirely and only the main galleries were kept in repair. It was only due to the help given by Japanese capital that the mine was saved in this way. No other foreign capital could be obtained at that time. After having settled matters satisfactorily at Pingsiang the Chinese manager went to Shanghai and after consultation it was decided to discharge all the foreign engineers of the Hanyehping Works and the colliery, and most of the foreigners left for Germany in January, 1912. Mr. Leinung remained in Shanghai to watch developments, and later received telegraphic instructions to re-engage only five of his former assistants instead of twelve as had been arranged, on account of fresh troubles having arisen at Pingsiang. The natives in the vicinity of the mines had encroached upon the Company's property. They had opened a good many native mines in the Company's coalfield, although the first Chinese manager had taken great pains to buy out all the native mines within the field in the first years, and everything was in confusion as a result of the revolution, none of the former rights obtained from the Manchu Government being recognised. Every province wanted to be independent of the Central Government and in such conditions it seemed very doubtful whether it would be worth while resuming work at the colliery. However, at the beginning of April, 1913, they were able to return and to start work. It took some time to get the mine in order again, but this was done at last, and at present the output is about 3,000 tons per day.

COLLAPSE OF THE MONARCHY MOVEMENT

Presidential Mandate Restores the Republic

The Far Eastern Review has published each month in its columns as a categorical record the developments in connexion with the attempt to restore a monarchy in China. All important documents in the case will be found in previous issues. The following continues the story.

The issue of the Mandate postponing for an indefinite period the enthronement ceremony (reported in the last issue of the REVIEW) was variously interpreted. In some quarters it was believed—and the beliefs have proved correct—that it foreshadowed the eventual abandonment of the attempt to restore the monarchical system, while in others it was held that the system had already been restored and that the postponement of what after all is only a ceremony involved no change of plan.

A most important sitting of the Tsan Cheng Yuan was held on February 26 to consider a proposal to accelerate the convocation of the National Assembly. The representative of the Government, Mr. Chang Ming-chen, in introducing a Bill providing for an earlier meeting of the National Assembly than was originally intended, explained that the Government was anxious that the system of constitutional government should be instituted with the least possible delay. The idea was to make the members elected to the National Convention, members of the National Assembly, as the electorates and electoral methods in each case were practically identical. The proposals of the Government were agreed to and the following dispatch was sent to the State Department:—

"In tendering this reply, the Tsan Cheng Yuan, acting in the capacity of the Li Fa Yuan, has the honour to acknowledge the receipt on the 25th inst. of the following mandate:—

"A Li Fa Yuan composed of members elected by the people ought to have been convened during the period of the Constitutional Compact. The need of such an organ is doubly urgent during this time when the Throne intends to start anew with the people. A Mandate was issued last year in the 12th month stating that the legislative organ would be established within a year. The desire of the people to see an efficient government at work is more earnest than ever, and in view of the need to respect the wish of the people and to reform the administration, the delay must not continue. The process of election for the Li Fa Yuan, however, is exceedingly complicated and difficult, and it is impossible to expect the same to be carried through in a short space of time. In these circumstances, it would be more practicable to treat the final election of the Citizens' Convention—already carried through in the provinces and all the special administrative areas in advance of the date fixed last year—as the final election for the Li Fa Yuan. In pursuance of this policy the successful and reserve members of the final election of the Citizens' Convention shall be regarded as having been elected to the Li Fa Yuan. The single balloting of the Special Central Electorate and the Combined Electorate of Mongolia, Tibet and Tsinghai, which have not yet been completed, shall be held at an early date for the purpose of electing members to the Li Fa Yuan. In this way the Legislature representing the wish of the people may be convoked within a short time. Whether this be practicable or not it is our duty to consult the acting Li Fa Yuan, which shall give us an early reply.'

"The State Department, in compliance with the instructions from the Throne, urged that this House should quickly deliberate on the question and submit an answer at an early date. In compliance with the order a meeting has been called and held on the 26th inst., and the House is unanimously of the opinion that since the procedure for electing the members of the Li Fa Yuan is identical with that for the election of members for the Citizens' Convention and since the people are eager for an efficient administration and the Government, at the beginning of the era of a constitutional government, is desirous of having the Li Fa Yuan established at an early date, the successful candidates of the final election of the Citizens' Convention should be regarded as successful candidates of the final election of the Li Fa Yuan, and the election of the Special Central Electorate and of the Combined Electorate of Mongolia, Tibet and Tsinghai should be abridged to an earlier date for the election of their proportion of members to the Li Fa Yuan. In proceeding in this manner the law will not be violated in the least. A perusal of the organisation law of the Li Fa Yuan shows that its regular session should begin on the 1st day of the 9th month and continue until the end of the year. At this time when the cause of constitutional government is advancing vigorously, the convocation of the Li Fa Yuan should take place at an earlier date than previously fixed so that the Legislature may soon be established and the expectations of the people may be satisfied and the foundation of the nation consolidated. The question has been discussed and unanimously settled in the sense of the proposal submitted. We have the honour to communicate this reply respecting our decision and ask the State Department to submit the same to the Throne for promulgation.

"Dated the 26th day of the 2nd month of the first year of *Hung Hsien*."

This was followed by the promulgation on February 28 of the following Mandate:—

According to the organisation law of the Li Fa Yuan, the beginning of the regular sessions of that body is fixed for the 1st of the 9th month and to continue until the end of the current year. But the opening sessions of the Li Fa Yuan differ somewhat from what will be its ordinary sessions. At this moment when the constitutional movement is being pressed with the utmost vigour, the Yuan should be convened at an earlier date than that prescribed in order that the longings of the people may be satisfied. It is hereby proclaimed that the first day of the 5th month is fixed as the day on which the Li Fa Yuan shall be convened. The Ministry of Interior and the Bureau for the Preparation of the Li Fa Yuan shall make all the necessary preparations to this end in accordance with law.

Since the past year we have, in absolute sincerity, declared to our citizens that the establishment of a constitutional government will be effected with the utmost despatch. Although it is highly important for a constitutional country to have a responsible administration to carry out great policies for the benefit of the country and secure blessings for the people, in addition to the Judiciary which must be organised in accordance with law, it is doubly important that there should exist a Legislature, collectively representing the wish of the people for the purpose of strengthening the far-sighted policy of securing a permanently peaceful and efficient Government. As a result of the Constitutional Compact—which invested the power of national legislation in the Li Fa Yuan to be composed of members elected by the people—the Bureau for the Preparation of the Li Fa Yuan was organised after the promulgation of the Organisation Law and the Election Law for the Li Fa Yuan, in order to attend to the necessary measures and arrangements required by law for an early establishment of the Legislature. Later, the Provisional Constitution Conference adopted a Bill for the organisation of the Citizens' Convention, which was promulgated according to the process of law. The organisation of the Citizens' Convention, with the exception of the sixty members elected by the legislating, administrative and judicial organs, is similar to that of the Li Fa Yuan respecting at once the number of members, the division of electoral areas, the qualifications for the electors and the procedure of election. And as the elections of these two bodies and their respective functions are practically alike, a Bureau for the Preparation of the Citizens' Convention was attached to the Bureau for the Preparation for the Li Fa Yuan, in accordance with law so that the two classes of affairs might proceed at the same time without causing confusion.

Since the establishment of these two Bureaux, repeated instructions have been given to the same speedily to complete, with the co-operation of the Superintendents of Election, the various stages in the process of organisation, including the investigation and drawing up of the lists of electors and candidates, the verification of electoral qualifications, etc., etc. In the ordinary course, the election for the Li Fa Yuan should first be held; but as the process of constitution making had already been begun by the nomination of a Committee by the Tsan Cheng Yuan to draft the same, it became necessary to change the date for the convocation of the Citizens' Convention to one earlier than that originally fixed. Consequently the election for the Li Fa Yuan, which was to have preceded the other, was utilised for the election to the Citizens' Convention. In this way, the election for the Citizens' Convention was begun after the 10th month of last year, and by the 12th month of the same year all the members of the Citizens' Convention, with the exception of those of the Central Special Electorate and the Combined Electorate of Mongolia, Tibet and Tsinghai—the elections of which have not yet been held—were elected as the result of the final elections held in the various provinces and special Administrative Areas as reported, at various stages of the electoral process, by the

Bureau in charge of the Citizens' Convention Affairs and the Bureau for the Preparation of the Li Fa Yuan.

While it is not advisable to delay the actual establishment of constitutional government, it is also true that it will not be wise to hurry through, without proper consideration, the drafting of the constitution; and since the great fundamental law is closely and vitally related to the welfare and otherwise of the nation, it is recognised that the Committee drafting the constitution should be given ample time to discuss the same and not be unduly urged to hasten their work, which, if done under circumstances of haste, will pack the way with obstacles. On the other hand it is not in accordance with policy to hasten the establishment of constitutional government with the utmost vigour and to respect the will of the people and at the same time to postpone the convocation of the Li Fa Yuan until after the promulgation of the constitution, which is to follow the passage of the constitution in the House of the Citizens' Convention. By law there should have been a Li Fa Yuan composed of members elected by the people during the period the Constitutional Compact was in force. At this time, when we desire to begin anew with the people and when the concern of the people for political affairs is more earnest than ever the Li Fa Yuan provided for in the Constitutional Compact should be organised at an early date in order that the people and the Government may mutually assist one another in their task of securing an efficient administration. A declaration was made last year in the 12th month stating that the legislative organ would certainly be organised within this year. At that time we were already of the view that the people's representative body was vital to the foundation of the country, and that it was impossible under any circumstances to postpone the actual adoption of a constitutional government. The desire of the people to see an efficient administration is now more keen than ever, and the great policies of the State do need their upholding. Although no definite provisions have been made in the Constitutional Compact respecting the time limit within which the Li Fa Yuan should be organised, we in pursuance of our policy to respect the wish of the people and energetically to work for administrative reform, consider this to be instantly necessary and must not be further delayed.

It is presumed that when the law for the election of the members of the Li Fa Yuan was made, the intention of the draftsmen was to emphasise the importance thereof by making the process at once complicated and prolix. In spite of the fact that a special Bureau has been in existence, the sending of telegrams and documents back and forth has taken up a great deal of time. Besides, the financial resources of the local places are limited and if they were to go through the process of election for the Li Fa Yuan as prescribed by law after the preliminary and final elections which have just been held in connexion with the Citizens' Convention, it is feared there will be obstacles in the way and the hope of witnessing the establishment of the Li Fa Yuan within a reasonable time will be falsified. Under the circumstances and for the sake of expediency, the immediate solution is to consider the final election held in connexion with the Citizens' Convention last year as the final election for the Li Fa Yuan, and the successful candidates as well as the reserve members of the final election thus secured as the successful candidates and reserve members of the Li Fa Yuan. As to the single ballot election of the Central Special Electorate and the Combined Electorate of Mongolia, Tibet and Tsinghai, the same shall be held at a date earlier than that originally fixed. The Bureau for the Preparation of the Li Fa Yuan may then be instructed to proceed with the matter quickly. In this manner the spirit of the Constitutional Compact will not be violated, while the procedure prescribed by law will be followed. Thus by a single proceeding the Li Fa Yuan, which is representative of the people, will be established in a short space of time. Such is the sincere desire of the State to forward the progress of constitutional government which is to be put into effect—albeit the circumstances are difficult:—in order to satisfy the longings of the people for a peaceful administration.

While it is recognised that the conversion of the successful candidates of the final election of the Citizens' Convention into successful candidates of the final election of the Li Fa Yuan is only a measure of expediency, the law is in no way violated, as the numbers of the members and the procedure of election are identical with the additional advantage that the progress of constitutional government is hastened. In regard to the making of the constitution, since the same affects the foundation of the nation, the Drafting Committee should be given ample time thoroughly to discuss the same. They should carefully consider what is best and most appropriate for the fundamental organisation of the State, the strengthening of the foundation of the country and the increase of the influence of the nation, and see to it that every step of the process is in accordance with the prescribed programme. The Bureau in charge of the affairs of the Citizens' Convention have proceeded with the election for the Citizens' Convention in accordance with law; and the successful candidates elected as the result of the final election for the Citizens' Convention are to become the successful candidates of the final election for the Li Fa Yuan. Whether this could be done or not, it was our duty to inquire of the acting Li Fa Yuan in accordance with the Constitutional Compact and to request a speedy reply from the same body. This inquiry was accordingly sent to the acting Li Fa Yuan and a reply has been received from the same, stating that a meeting was called and held on the 26th inst., and the House was unanimously of the opinion that, since the procedure for electing the members of the Li Fa Yuan is identical with that for the election of members to the Citizens' Convention and since the people are eager for an efficient administration and the Government—at the beginning of the era of a constitutional government—is desirous of having the Li Fa Yuan established at an early date, the successful candidates of the final election of the Citizens' Convention should be regarded as successful candidates of the final election of the Li Fa Yuan, and the election of the Special Central Electorate and of the Combined Electorate of Mongolia, Tibet and Tsinghai should be abridged to an earlier date for the election of their proportion of members to the Li Fa Yuan. In proceeding in this manner the law will not be violated in the least. A perusal of the organisation law of the Li Fa Yuan shows that its regular session should begin on the 1st day of the 9th month and continue until the end of the year. At this time when the cause of constitutional government is advancing vigorously, the convocation of the Li Fa Yuan should take place at an earlier date than previously fixed so that the Legislature may soon be established and the expectations of the people may be satisfied and the foundation of the nation consolidated.

Besides issuing a separate mandate regarding the convocation of the Li Fa Yuan at a date earlier than that previously fixed, this proclamation is hereby specially issued to the end that the whole country may hear and know.

The session of the Tsan Cheng Yuan in its capacity of Acting National Assembly terminated on February 29, and this really means the termination of its existence as a law making body as its duties will be taken up on May 1 next by the National Assembly.

Progress in connection with the military operations against the republican troops continued to be unimpressive during the latter part of February and early in March. The illness of one of the loyalist leaders, General Ma Chi-tseng, Commander-in-Chief of the forces in Hunan, which terminated fatally, was one cause of delay. The weather was unfavourable to any operations on a large scale and consequently only a little indecisive skirmishing took place.

The pressure of the loyalist troops upon the republicans was steadily continued both in Yunnan and Hunan, and districts that had been occupied by the republicans early in the campaign were recaptured. While the military position continued favourable to the Government in these provinces, some uncertainty was felt in regard to the attitude of Kwangsi, or rather of Lu Yung-ting, the Military Governor. This uncertainty tended to hamper the operations of General Lung Chin-kuang who had led a force of Kwangtung troops into Yunnan with which he captured Poyi or Poyai. It was reported to the Government that Tsen Chun-hsuan, formerly Viceroy of the two Kwang provinces, was in Kwangsi endeavouring to persuade the local troops to revolt, and it was also said that Liang Chi-chao, or his emissaries, were similarly employed. Early in March Lu Yung-ting accepted the post of Pacification Commissioner of Kweichow that had been offered him by the Government, but after leading a force of 3,000 troops from Nanning to Liuchou he declared the province of Kiangsi independent. This was on March 10, but for some time it was not clear whether Lu was acting on his own initiative or had had his hand forced by his subordinate officers. At the moment of writing this point remains obscure.

The secession of a third province at a time when matters were shaping well for the Government in a military sense was undoubtedly serious. It has been generally expected that any significant success by the republicans would result in accessions to their ranks, but when a third province joined them just after their forces had sustained a series of defeats in the field, it became obvious that a sentiment deeper than a desire to be on the winning side was operative.

The Kwangtung troops under General Lung Chin-kuang were placed in an exceedingly dangerous position. Before them were the Yunnanese and behind them the Kwangsi forces. The course that this General will adopt is a matter of speculation, though the suggestion is made in republican quarters that he will be compelled to espouse their cause. As his brother, General Lung Chi-kuang, is Military Governor of Kwangtung it will be realized that the situation is extremely complicated. The Government, however, have professed perfect confidence that General Lung Chi-kuang will remain loyal.

In connection with the elections for the National Assembly, a Mandate was issued on March 14 ordering the single election

of the Central Special Electoral College to be held on April 10, and that for the United Electoral College of Mongolia, Tibet and Chinghai on April 15. The provincial members were elected some time since. The suggestion has been made that when the National Assembly meets in May the question of the form of government will be reconsidered, but this statement has been denied semi-officially.

The Emperor-Elect on March 4 issued a long mandate dwelling on the necessity of unity in the present crisis in the affairs of the country. He urged the people to abandon personal and partizan feeling and to co-operate to preserve the country intact.

On March 6 news of the first significant success of the loyalist troops was published in Peking, the announcement being made that the city of Suifu has been recaptured. The fight for the city actually began on March 1, when the loyal forces under Brigadier-General Feng Yu-hsiang attacked 3,000 republicans who had fortified the hills surrounding Suifu. Some success was gained, and on the following day all the republican positions on the left bank of the Yangtze were captured. The dispatch from General Feng stated that the republicans had sustained heavy losses and were in full flight. The loyalist losses were over a hundred men killed and wounded. A later dispatch stated that on March 3 the victory was followed up and the recapture of Suifu completed. The losses of the republicans were estimated to be over a thousand killed.

Fighting also occurred in Hunan and Yunnan early in March. In the former province over four hundred republicans were killed at Kaotsun, and in Yunnan a loyalist detachment after severe fighting captured the city of Poyai. Though not of decisive importance from a military point of view, these loyalist successes have certainly had considerable political effect. It would be idle to deny that in certain localities, especially in the Yangtze Provinces, there are sympathizers with the republicans who would probably be stirred to action if the latter won any signal success. On the other hand defeat would just as inevitably entail a diminution of sympathy, or at least prevent its translation into practical co-operation. The expulsion of the republicans from Suifu and Nachi therefore, especially as it has been followed up by loyalist successes in Hunan, may be expected to prevent the spread of the rebellion beyond its present bounds. That the Government attached considerable importance to the recapture of Suifu was shown by the issuance of a mandate on March 7 creating General Feng Yu-hsiang a Baron. Another mandate issued the same day appointed the Military Governor of Kwangsi, General Lu Yung-ting, Pacification Commissioner of Kweichow. Later Pacification Commissioners for Yunnan and Hunan were appointed.

A Reuter's Agency telegram from Chengtu, dated March 9, announced that Government troops had been dispatched from Suifu and Luchow towards Kiangmen with the object of cutting off the Yunnanese in Kianganhsien and Nakkihsien from communication with the south. This message also stated that the Kweichow troops had retired from Chikiang, around which city there had been heavy fighting, to positions within their own border.

During the next few days a succession of Government victories was announced. The Yunnanese were defeated at Nanchi and expelled from both banks of the upper Minkiang. In Hunan the city of Mayang was recaptured, the Kweichow troops retreating in disorder.

After it became apparent that the Government forces in Szechuan and Hunan had the upper hand, the Government decided to reconsider the whole situation without prejudice. While it was almost beyond the bounds of possibility that the republicans could achieve success by arms, there was an obvious danger that hostilities might be prolonged for a considerable time, and much distress caused in consequence. There was also the grave danger of intervention by Japan. That country had given many clear manifestations that, if she were accorded a colourable excuse, she would seize the opportunity to land forces to "protect foreign interests." In order to maintain the fiction that she is playing an important part in the world war, Japan is naturally anxious to take any chance of showing that she is performing work that her allies are debarred from attending to themselves. Intervention in China would, therefore, enable her to gain, or at least to claim, credit in this direction, while at the same time advancing her own policy in regard to China.

These considerations finally induced the Government to decide to take such action as would bring the internal strife to an end. A mandate cancelling the monarchy was actually in course of preparation when the news of the secession of Kwangsi was received. This secession naturally complicated matters but despite the chance that "face" would be lost owing to the impression being given that the Government had been forced to cancel the monarchy because of the secession, it was decided to take action, particularly as telegrams had been received from several of the Military Governors, including General Chu Jui of Chekiang and General Feng Kuo-cheng of Kiangsu, recommending that some steps should be taken without delay to improve the situation. A telegram of the first importance was received from General Lung Chi-kuang, Military Governor of Kwangtung, stating that the situation in that province was most serious. A summary of the mandate was communicated to all Provincial Governors and it was formally issued on March 22.

The immediate result of the cancellation of the monarchy will be the return to the Government's service of most of the men who for conscientious reasons have maintained aloofness since the monarchy movement developed. As is well known there is thought to be disgrace in serving two dynasties, and consequently many of the ablest men in China deemed themselves debarred from assisting Yuan Shih-kai after he had been offered and had accepted the Throne. Mr. Hsu Shih-chang, the former State Secretary, promptly resumed office, the mandate of cancellation, in fact, being signed by him.

Advice to Yuan Shih-kai

Before its declaration of independence, a telegram was despatched from the Province of Kwangsi, asking Yuan Shih-kai to retire from his post. The telegram, which bears over twenty signatures including those of Field Marshal Lu Yung-ting, Mr. Liang Chih-chao, General Chen Ping-kun, recently appointed to act as Chiangchun of Kwangsi upon the departure of Field Marshal Lu for the front as Pacificator of Kueichow, Wang Tsu-tung, Civil Governor of Kuangsi who was before considered the most trusted servant of Yuan, and Taoyins and military commanders, reads as follows:—

Your Excellency Yuan, the former President.

"We regret to say that since the enforcement of the monarchical system, popular wrath has reached boiling point, and the Yun-Kuei have taken you to the task, resulting in the outbreak of hostilities which have continued from winter to spring. To what extent our national danger will grow, we are unable to say. But the source of the evil can be traced to your oppressive policy relentlessly pursued during the past several years causing disaffection and hatred amongst our people; while the demon of slaughter has been let loose, by your selfish plot to steal the country, during several months, courting ridicule and contempt from foreign countries. We find that Article 16 of the Provisional Constitution provides that the President shall be responsible to the people. As Your Excellency's misgovernment and violation of the constitution are witnessed by millions of eyes, on whom could you lay your responsibility for these lamentable consequences? As the Yun Kuei have risen in upholding a righteous cause, they cannot retrace their steps. Should Your Excellency persist in your foolhardy dream, by what stratagem can you save yourself? I, Lu Yung-ting, holding office in a frontier province, deem it my first duty to preserve peace. I, Liang Chih-chao, having travelled through many places, feel much alarmed at the piteous plight of our people. We vividly recollect the event of the Year Hsin-Hai (1911). The former Ching House, having ruled almost 300 years, was nevertheless unable to bear the sacrifices of the people's lives—it preferred to abdicate the Throne. Now, Your Excellency has been doing just the opposite; and wishing to appropriate the country as your private property, you feel no compunction in causing the massacre of thousands of human beings and in hastening the downfall of our nation. Do you feel ashamed of yourself when

compared with the defunct dynasty? Moreover, your end will never be gained, and you will only be laughed at. You deem yourself a wise man. Has ever a wise man acted thus? Lu Yung-ting and others, in view of our friendship and colleagueship for a number of years, cannot bear to see Your Excellency in sacrificing the country, sacrifice yourself in the end. We earnestly tender you our sincerest advice that you resign your office on date as an expression of apology to the world. Then Lu Yung-ting and others will persuade our Yun-Kuei patriots to lay down their arms on the same day. Your Excellency will thus be able to demonstrate your true ambition, while the country will be immediately relieved of the threatened danger. As the situation has become most critical and must be retrieved without a moment's delay, Your Excellency is earnestly requested to give us a reply within 24 hours, in order that we may know what to do. We are waiting your order in painful suspense meanwhile."

The following is the *Peking Daily News* translation of the mandate cancelling the monarchy issued on March 22.—

Since the inauguration of the Republic, troubles and disturbances have come in rapid succession; and I, a man of little virtue, have been obliged to shoulder the most difficult responsibility. Patriots of this country, who have cherished the fear of imminent dangers, have advocated the restoration of monarchy with the object of averting quarrels and securing permanent peace. Since the time of the Second Revolution our ears have been filled with their arguments; but from time to time I have discouraged their movements. However since last year the circumstances have been greatly changed and I have been unable to suppress their opinion. They have unanimously said that "unless a constitutional monarchy be introduced, the existence of the Chinese nation will never be preserved. If internal quarrels and contentions, similar to those taking place in Mexico and Portugal, should commence in this country, it will meet with the fate of Annam and Burma." Consequently the majority of people have advocated the restoration of monarchy, and these actions have been supported with good reasons. Generals, soldiers, officials and common people have acted with one accord, they lately sent in a large number of telegrams and memorials, earnestly craving that I should change the form of State by using the influence of my present position. I made repeated declarations of my heart, but they were not heeded by the people. Later on the Acting Li Fa Yuan passed a resolution that the problem of the form of State should be decided by the Convention of Citizens' Representatives; when the convention took place the Citizens' Representatives of all provinces and Special Administrative Areas unanimously voted in favour of the Constitutional Monarchy, and elected me to be the Emperor. As the sovereign authority of the Chinese nation is lodged with the whole body of the people of the country, I could not raise any opposition when the question was finally settled by the whole body of Citizens' Representatives. However, my heart could not be at ease if I should ascend the Throne by breaking my oath of inauguration and disregarding principle and faithfulness. I showed my sincerity and modesty by refusing to accept the post of honour. But the said Yuan insisted that the oath of the Chief Executive was based upon the position he held at that time, but now as the condition changed he should follow the will of the people. Hence I could not make any further excuse on account of the grave responsibility forced upon me. However, in order to satisfy temporarily the public desires I proceeded with the preparatory works, and no actual steps were taken. After the outbreak of the trouble in Yunnan and Kweichow, I promulgated a mandate ordering that the preparatory works should be delayed, and that no more petitions requesting the enthronement should be transmitted to me. Then I promulgated another mandate hastening the convocation of the Li Fa Yuan with the hope of ascertaining as soon as possible the real opinion of the people, and devising some means to relieve me of the difficulty.

Indeed I remember that after meeting so many reverses and disasters, I had not the least desire to attend to the affairs of the State; and when I lived in retirement at Huan-shang I was happy because I was kept ignorant of the real situation of the country. When the outbreak of the Revolution of 1911 took place I was obliged to come out from my place of retirement, my services being required by the people of this country. When I was called to manage the critical situation of this country I determined not to know anything but the salvation of the nation. One can observe in the Chinese history of several thousand of years how the descendants of Emperors of every dynasty have met tragic ends; and why should I be ambitious for the highest post of honour of the country? However, the Citizens' Representatives have not had any sympathy on the sincerity of my refusal to accept the Throne; while a certain portion of the people think that I have sought selfish interest. Through misunderstandings the present trouble has arisen. My sincerity has not been sufficient to move the heart of the people, and my understanding has not been able to read the signs of the times. It is the lack of virtue on my part, and therefore I have no right to blame others. My people have now been inflicted with misery and my Generals and troops have now borne hardships. The people have been seized with consternation, and commerce and industry have declined. When I think of them I do feel sorry, I do not hesitate to sacrifice my own opinion in order to adopt that of others.

I hereby declare that I still recognize that the memorials and documents transmitted to me through the Acting Li Fa Yuan in connection with the request for enthronement are inconsistent with the present condition of the country. The Bill passed on the 11th day of the 12th month of last year on the recognition of monarchy is hereby cancelled, and the State Department is hereby instructed to return to the Acting Li Fa Yuan all the petitions urging enthronement from the provinces and special administrative areas, so that they may be returned to the original petitioners to be destroyed. All preparations for the restoration of monarchy are hereby stopped. Thus I hope that by imitating the repentance and remorse of the ancients, the love and grace of Heaven will be received. We will cleanse our hearts and thoughts, so that trouble will be averted and the people will obtain peace and tranquillity.

I believe that those who have advocated the restoration of monarchy are men trying to consolidate the foundation of the nation; but by using wrong means, they have injured the interest of the nation instead of promoting its welfare. On the other hand those who have opposed the restoration have only been expressing their political ideas; and I believe they will not be so obstinate as to bring the nation to the verge of destruction. At this critical juncture it is imperative that all should act according to the dictates of their conscience, abandoning their prejudices, and uniting their energy together in order to bridge over the present difficulty. Thus the sons and descendants of this celestial land will avoid a family quarrel, and then instead of disasters and woes there will be peace and prosperity.

In a word for the sins and crimes of the people in all directions of the country, I am willing to bear them all. Now the Bill which was passed by the Li Fa Yuan, has been cancelled; and should any try to create disturbances in any locality they shall be held responsible by the authorities. I, the President, am responsible for the administration of the whole country, therefore, it is impossible for me to remain inactive awaiting the destruction of the nation without putting forth efforts to effect its salvation. The present condition is indeed deplorable: people everywhere have suffered, laws and principles have not been observed, administration has not been improved, and the services of men of talents and ability have not been secured. When I think of it in the midnight, I would always get up; and if the same state of affairs should continue, this nation will not be able to remain in the world. Hereafter all civil and military officials should do their best to do away with the accumulated corruptions and bad practices and to achieve merits. They should proceed in earnest to perform the tasks assigned to them and to introduce all kinds of administrative reforms. They should not indulge in empty words, and cherish prejudices. I will institute thorough investigations, and my great principle for the administration is that all merits should be rewarded and demerits punished. All Generals, officials, soldiers and common people should therefore understand and appreciate my ideas.

[We are indebted to the *Peking Gazette* for the other translations of documents used in this article.—Ed].

Simultaneously the resignation of Mr. Lu Chang-hsiang of the post of Secretary of State was accepted, Mr. Lu was instructed to confine himself to his duties as Minister of Foreign Affairs, and Mr. Hsu Shih-chang was gazetted Secretary of State.

SOURCE OF BORNEO TALLOW

Illipe Nuts as the source of Borneo Tallow are discussed in an Imperial Institute bulletin in which it is pointed out that there has been for some time a confusion as to the source of the fat due largely to the variety of native names for the seeds yielding it. Mr. K. Heyne, curator of the Museum for Economic Botany, Buitenzorg, Java, has examined the seeds and kernels of several species yielding Borneo tallow and their fats submitted to chemical examination.

The principal interest in this fat, from the point of view of industry, is that it is especially suitable for the manufacture of edible fats, especially of the fats known as chocolate fats and used for incorporation with cocoa powder in the preparation of chocolate for eating purposes. It is highly desirable that the kernels should be exported as fresh as possible, but nearly all the fats examined had high acid values, through being rancid, owing to the length of time the kernels are kept before being exported.

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CONTENTS

	PAGE
The Pingsiang Colliery	375
Collapse in the Monarchy Movement	381
Source of Borneo Tallow	384
China's National Assembly	385
Chinese Mandates	386
The Hankow Reconstruction Loan	386
China's Railways in 1915	387
China and Roads	387
The Hokkaido Timber Industry	388
Foreign Trade of the Hokkaido	390
The Port of Lungkou	391
Taiwan (Formosa) and its Exposition	391
Mysore Santalwood Industry	397
An Examination of Chinese Bronzes	398
Shanghai's Municipal Electric Plant	401
Finance and Economy in Japan, 1914	406
Japanese Lime for the Philippines	407
Shipping, Navigation and Harbor Works in Japan	408
Tin Mining in the Orient	409
Engineering and Financial News	411

THE CHINESE NATIONAL ASSEMBLY

The decision of the Chinese Government to hasten the assembling of a more or less representative body at Peking to undertake legislative work is undoubtedly a wise step. At this late date, when much of the bitterness that prevailed in 1913 has disappeared, it is neither necessary nor desirable to consider too closely the causes which prevented the National Assembly of that year from accomplishing anything conducive to the advancement of the country. But it is as well to recall that during the elections the menacing tone adopted by the Kuomintang Press inspired little hope of a working compromise being arrived at between members of the party and the supporters of President Yuan Shih-kai. The unfortunate murder of one of the Kuomintang leaders upon the eve of the assembling of Parliament added fuel to the fire. The Kuomintang included many of the brightest and most promising of young Chinese publicists, but the party as a whole lacked balance, and was unable to recognise that the condition of the country and the necessities of the times imperatively demanded the cultivation of a spirit of compromise. Convinced as they were that the immediate application of the principles they professed would at once transform the social and economic life of the country, they were impatient with those who held the belief that reform should only be effected slowly and cautiously. Goodwill, and a mutual desire to understand the point of view of the opponent, would probably have led to the adoption of a course that was neither revolutionary nor reactionary. Unhappily, the spirit of conciliation was not manifested, and the breach deepened daily after the Parliament had met. As a result the business of the country was neglected in order to wage futile partizan battles and when, as an indirect result of the rebellion in the middle of 1913, the Kuomintang members of the National Assembly were unseated and that body's active existence terminated, the loss to the country was more moral than material. That there was a moral loss is undeniable. Inevitably, in spite of the Revolution, there were still many men of standing and influence who were either openly or secretly opposed to reform and innovation, and these were enabled to strengthen their position by representing the failure of young and inexperienced politicians to envisage realities as a failure of constitutional methods. There was also some material loss, as the services of many of the ablest men in the country were lost to the Government, at least temporarily.

In 1914 and 1915 the system of government was republican in name, but there was nothing republican in its character. The people of a republic are, at least in theory, supreme, but in China during these two years the people had no more to do with the Government than they had had under the Manchu dynasty. This is not written in a spirit of condemnation; the fact is simply recorded so that the situation may be clearly understood. It was probably necessary in the conditions that prevailed that the Government should temporarily be autocratic. It was recognised, however, that though the first phases of consolidation might be better effected under autocratic rule, progress was only possible under a constitutional government. Consequently a Constitutional Compact was formulated confirming the right of the people to self-government and a Commission was appointed to frame a permanent Constitution, which was later to be submitted to a National Convention. Arrangements were also made for the convocation of an elected National Assembly as soon as the permanent Constitution was promulgated. If there had been no modification of these arrangements, the National Assembly would have met in September next.

A new situation was created in the latter half of 1915 by the inception and development of the monarchical movement. A record of the progress of this movement has been given in former issues of the FAR EASTERN REVIEW and need not be repeated here. Necessarily the labours of the Constitution Commission were suspended until the verdict of the people on the question of the form of government was given. After that verdict had been recorded, and H.E. Yuan Shih-kai had accepted the throne, the insurrection broke out in Yunnan, the ostensible object of the leaders being to maintain the republic. Although the Government was confident of its ability ultimately to quell

the insurrection, it was obvious, as the scene of operations was remote from the centre of military power and facilities for the transport of a punitive expedition poor, early success could not be hoped for. In the meantime, while the military plans were being developed, the Government very wisely took into consideration means of hastening the establishment of the constitutional regime. Owing to the advice proffered by certain of the Powers at the instance of Japan, the formal enthronement of the Emperor-Elect was postponed, but it was felt that even the anxious solicitude of Japan for the welfare of the country would hardly prompt it to try to prevent the earlier assembling of a Parliament.

By singular good-fortune the Government, having decided that a Parliament in being was necessary, found one to its hand, ready-made, so to speak. It had originally been intended that a National Convention should be elected for the sole purpose of considering the draft Constitution. In order to give full authority and weight to this body, the election law regulating its creation was made practically identical with that for the National Assembly. Most of the members had already been elected when it was decided to hasten the convocation of the National Assembly, and the happy expedient of investing the members of the National Convention with full legislative powers was adopted. A Mandate, that is published elsewhere, gave legal effect to a recommendation by the acting National Assembly that this course should be taken, and it will, therefore, be possible for a legislature to assemble four months in advance of the date originally fixed.

For many reasons it may be anticipated that the new National Assembly will avoid the mistakes of its predecessor. It will be much more conservative in character, the franchise being such that both electors and candidates were men whose age and antecedents practically guaranteed sobriety of thought. While a wide franchise would be more in accordance with the tendencies of the times, in the special conditions that prevail in China it is essential that its legislature should consist of men practical rather than idealistic. A characteristic of youth is impatience with slow progress, and Young China has already shown that it wished to hustle the country along at a speed that left it so breathless that it sullenly determined that the snail-like movement of the past was better for its constitution. In that, of course, it was in error, but obviously a moderate pace will be advisable until the country becomes accustomed to the rarer air of the higher level along which its path lies. The new National Assembly, therefore, if it should prove to lack brilliance will, perhaps, be the better fitted to perform the important preliminary work of consolidation which is essential before real progress can be made.

CHINA'S MANDATES

If the mere flourishing of the Vermillion pencil could exercise transmuting power we would have miracles in China. Most of the reforms required to convert the country into a thoroughly modern state have at one time or another in past years been glorified in classic style either in Edicts of the old Manchu regime, in Mandates of the Republican regime, or in Mandates of this temporary or otherwise period of *Hung Hsien*. It would seem, however, that the Edict or the Mandate is the catafalque on which the idea is conveyed to its grave, for few seem to survive. The serious, but unsophisticated stranger in the land would probably take the solemn promulgation of apparently earnest Mandates as undoubted evidence of determination on the part of the rulers of China to fall into line in matters of government with the most advanced of the world's Powers. And while it might be doing an injustice to those who laboriously prepare and issue the Mandates to suggest that they were promulgating them with their tongues in their cheeks, the fact remains that once the Mandate is published no more attention is given to the subject either by those who whipped it into form, by those who sped on its way the finished product, or by those officials in the Provinces who are supposed to translate orders from the Capital into deeds. The whole process of Mandate making in the past has been so closely related to the farcical that the gravest difficulties confront the authorities who might wish classical ebullitions to be taken seriously. The provincial officials have by time-honoured recognition of their right to neglect their duties come to regard the Mandate as so much caligraphy designed to ornament Yamen walls, or to contribute to the delectation of the literati who might wish to study up-to-date composition. That a Mandate is made to be put into effect never occurs to them. Their duty, as they conceive it, is done when they hand it to the yamen runner to paste on the board outside the gate. If the general public condescends to come and read the document well and good, if any of them feel moved to give effect to the commands contained therein so much the better—and that, even, is more than Peking has the right to expect! The official seldom stirs out of his yamen, nor has any one the least ground to entertain the thought that he should. To suggest that he should take a Mandate seriously and contrive the means to carry into effect its commands would be an unforgivable impertinence. No provincial official in China would be guilty of so gross a dereliction of official etiquette as to bestir himself early in the morning with the object of accomplishing a man's work before nightfall. The Provincial official has his own notions of what his mission on earth is, and he takes a whole day over cups of the best Hangchow green tea, to contemplate it, the result being by no means the precedence of his own comfort by his country's affairs. One of the most urgent reforms called for, therefore, is a change in the treatment of the Mandate by provincial officials. We have been given to believe by certain evidences that conditions are changing for the better in China. Being optimistic we believe we can see marked improvement in many directions, and certainly we know of many officials and civilians who are earnestly desirous of breaking effectively with the past, which seems to have, unhappily, a strangle hold upon the present. When the day comes that the Mandate can be enforced, or rather that the official in the provinces will regard it as his prime duty to lose sleep until he has taken the measures required to put a given Mandate into effect, then will we believe that there is real hope of China marching on to the greatness her people deserve. It will, however, need more than a Mandate ordering Mandates to be respected to effect this desirable change.

THE HANKOW RECONSTRUCTION LOAN

The agreement entered into between the Chinese Government and Messrs. Samuel & Co., Limited, on September 19, 1914, for the reconstruction of Hankow was renewed for a further year on February 8, when Messrs. Samuel & Co.'s Peking representative concluded negotiations with that object, by paying over the silver equivalent of £30,000 as an advance. In making the advance the following terms were arranged:

(1). That Samuel & Co., Ltd., have an extended option on the Loan Agreement until Two (2) Years after Peace has been Proclaimed with regard to the War.

(2). Interest on the Advance is to be payable half-yearly through the Bank of China.

(3). In the event of it being found impossible to float the "Hankow Improvement Loan" on or before Two (2) Years after Peace has been Proclaimed, then the Chinese Government will repay the amount of the Silver Advance in full, together with all Interest monies due at the time repayment is made.

(4). During the extended period of the Agreement. (i.e. until two years after peace has been proclaimed), the Chinese Government will not compel Samuel & Co., Ltd. to float the first issue of the Bonds if the conditions of the European markets are unfavourable.

(5). The Chinese Government will purchase outright and Nationalize the existing Electric Light & Waterworks Company's workings and undertakings at Hankow by the means of an Internal Domestic Loan, which is to be specially floated for that purpose. The outlay for the purchasing and nationalizing the said works and undertakings is to be refunded to the Chinese Government at a later date out of the proceeds of the first issue of the "Hankow Improvement Loan" Bonds.

As the Government is not yet prepared to nationalise the Electric Light and Waterworks the Company is endeavoring to arrange for a loan from American financiers to enable them to dispose of present obligations and enlarge their equipments to cope with present increasing demands. If financial arrangements are completed with this object the Government will, when the

time comes for nationalization, refund the capital loaned by the American financiers.

Commenting on the extension of the agreement with Messrs. Samuel and Company the *Peking Daily News* says:—

"The terms agreed upon have the full support and approval of the Chinese Central Government as is evidenced by the fact that the Wai-chiaopu have officially notified the British Minister in Peking, who has been requested to record the details for future reference. The Minister of Finance and the Minister of the Interior, both of whose signatures were appended to the original "Hankow Improvement Loan" Agreement in September, 1914, on behalf of the Chinese Government, have also been notified of the new terms agreed upon.

"Under the original agreement of September 19th, 1914, the existing Hankow Electric Light & Waterworks Company was hypothecated to Samuel & Co., Ltd., as one of the collateral securities for their Loan. The fact that the Chinese Government have now entered into an undertaking with Samuel & Co., Ltd., to purchase and nationalize the Hankow Electric Light & Waterworks Company through the flotation of an Internal Domestic Loan goes to prove the seriousness with which the Central Government view the future importance of the Hankow Improvement Scheme. Once the Internal Domestic Loan has been floated and the purchasing transaction has been completed, the Electric Light & Waterworks will become the sole property of the nation, with the profits derived, which we understand average well over three hundred thousand annually, becoming still another source of income for the country's exchequer. There seems to be no reason why the existing Electric Light & Waterworks should not be under state control, always provided proper management is arranged for, and in arriving at their decision the Chinese Government appear to have agreed to a course of action which calls for nothing but congratulations. Foreign capital is always welcome for the encouragement and development of industry and commerce, but if Chinese capital is available so much to the advantage and credit of the country."

CHINA'S RAILWAYS IN 1915

From the following tables it is possible to gain an accurate idea of the financial situation at the end of 1915 of the Chinese railways now operating. This is rendered possible owing to the adoption of the unified system of accounting recently introduced by the Ministry of Communications—a system which is perhaps the most complete of any in use in the world. Before the system was elaborated by the special commission appointed for the purpose accounts varied as did the railways and it was never possible to make even an approximately accurate comparison of the working of the various lines. Each line had its own method of accounting, and when it is remembered that some of the lines are British, others Belgian, others French, others German and a few Chinese it may be realised how great a variety of systems were used. This has all been done away with now, and the new unified system is employed on all lines to the distinct advantage of the country and the satisfaction of the public who may wish to make comparisons. The tables given below are the first issued under the new system and the figures given are derived from reports based on headings which permit of no juggling of figures to swell receipts or diminish expenses or in any way to confound the investigator. An interesting development of the introduction of the system is the application by private railway companies for the forms so that they may be adopted, it being recognised that their employment will in the long run diminish the irregularities that have prevailed in the past.

In connexion with the tables given below it must be mentioned that the estimates were prepared in 1914, before the war, which accounts for the estimate of receipts being high and expenses low. It is more gratifying, therefore, that the receipts still show an increase, despite the disabilities caused by the war, particularly as the cost of all kinds of materials rose greatly in price.

Statement of the approximate totals of revenues and incomes of the Chinese Government Railways during 1915 as compared with the estimates.

Lines	Estimated figures	Actual receipts	In excess of the estimate	Less than the estimate
Peking-Mukden	$12,672,400.00	14,768,000.00	2,095,600.00	
Peking-Hankow	16,681,100.00	16,560,000.00		121,100.00
Peking Kalgan	2,668,566.00	2,721,500.00	52,934.00	
Kalgan-Suiyuan	905,084.00	880,940.00		24,144.00
Tientsin-Pukow	8,063,006.00	8,298,000.00	234,994.00	
Cheng-tai	2,416,125.00	2,116,549.71		299,575.29
Taokow-Chinghwa	593,335.00	633,000.00	39,665.00	
Shanghai-Nanking	3,484,500.00	3,436,800.00		47,700.00
Shanghai-Hangchow-Ningpo	1,878,000.00	2,070,000.00	192,000.00	
Canton-Kowloon	917,380.00	874,000 00		43,380.00
Kirin-Changchun	634,857.00	970,912.00	336,055.00	
Chuchow-Pingsiang	726,489.00	690,200.00		36,289.00
Canton-Samsui	530,325.00	851,568.00	321,243.00	
Kaifeng-Honan	1,160,502.00	1,154,600.00		5,902.00
Changchow-Amoy	38,030.00	41,080.00	4,050.00	
Total:	53,368,699.00	56,067,149.71	3,276,541.00	578,090.29
Balance			2,698,450.71	

Statement of Operating and Interest Charges of Chinese Government Railways for 1915 as compared with the estimates.

Lines	Estimated Figures	Actual Expenses	Balance Less than the estimates	In excess of the estimates
Peking-Mukden	$6,779,368.00	7,735,000.00		955,632.00
Peking-Hankow	10,252,681.00	10,700,000.00		447,319.00
Peking-Kalgan	2,318,858.50	2,052,700.00	266,158.50	
Kalgan-Suiyuan	1,441,022.20	999,806.20	441,216,00	
Tientsin-Pukow	9,824,124.00	11,051,000.00		1,226,876.00
Chengtai	2,091,434.00	2,021,336.00	70,098.00	
Taokow-Chinghwa	917,816.00	882,000.00	35,816.00	
Shanghai-Nanking	3,962,500.00	3,928,600.00	33,900.00	
Shanghai-Hangchow-Ningpo	3,006,000.00	2,371,000 00	635,000.00	
Canton-Kowloon	1,775,430.00	1,739,582.39	35,847.61	
Kirin-Changchun	1,374,534.00	1,447,999.00		73,465 00
Chuchow-Pingsiang	647,638.00	764,400.00		116,762.00
Canton-Samsui	305,416.00	579,067.00		273,651.00
Kaifeng-Honan	1,502,384.00	1,442,700.00	59,684.00	13,742.00
Changchow-Amoy	188,258.00	202,000.00		
Total:	$46,387,463.70	47,917,190.59	1,577,720.11	3,107,447.00
Balance				$1,529,726.89

Statement of the approximate balances between Receipts and Expenses (including interest and all other charges) of Chinese Government Railways for 1915.

Lines	Receipts	Expenses	Balance Profit	Balance Loss
Peking-Mukden	$14,768,000.00	7,735,000.00	7,033,000.00	
Peking-Hankow	16,560,000.00	10,700,000.00	5,860,000.00	
Peking-Kalgan	2,721,500.00	2,052,700.00	668,800.00	
Kalgan-Suiyuan	880,940.00	999,806.20		118,866.20
Tientsin-Pukow	8,298,000.00	11,051,000.00		2,753,000.00
Chengtai	2,116,549.71	2,021,336.00	95,213.71	
Taokow-Chinghwa	633,000.00	882,000.00		249,000.00
Shanghai-Nanking	3,436,800.00	3,928,600.00		491,800.00
Shanghai-Hangchow-Ningpo	2,070,000.00	2,371,000.00		301,000.00
Canton-Kowloon	874,000.00	1,739,582.39		865,582.39
Kirin-Changchun	970,912.00	1,447,999.00		477,087.00
Chuchow-Pingsiang	690,200.00	764,400.00		74,200.00
Canton-Samsui	851,568.00	579,067.00	272,501.00	
Kaifeng-Honan	1,154,600.00	1,442,700.00		288,100 00
Changchow-Amoy	41,080.00	202,000.00		160,920.00
Total:	56,067,149.71	47,917,190.59	13,929,514.71	5,779,555.59
Net Profit			$8,149,959.11	

So far reports for the individual railways for the year 1915 have not been completed and the only reports available that have been produced in accordance with the regulations for the unification of accounts are for the half year ending June 30, 1915. At that date the Government Railways in operation in China totalled 5,701.47 kilometers, in addition to which there were 241.83 kilometers and 2,399 kilometers or what are described as Concession Railways.

The rolling stock in operation at that period was 627 locomotives, of which 162 were passenger, 330 freight and 140 shunting. There were 823 passenger carriages, 103 being first-class, 214 second-class, and 576 third-class.

Passengers to the number of 13,000,000 were carried during the six months, the bulk of that being third-class, the percentage being 96.54, while the second-class passengers amounted to 2.76% and the first-class 0.7%. The revenue from this source was $11,120,059.

CHINA AND ROADS

It will be gratifying to all who are interested in the development of China, and particularly to those whose business compels them to traverse the interior, to see that the Government is taking some notice of the efforts that have from time to time been made to have the great thoroughfares of the country improved. Centuries ago China had good roads, roads that

probably rivalled those of any contemporary country, not excepting the famous highways made by the Romans, but during the past century the art of public utility building, like the art of porcelain making, has died a natural death, and present day inhabitants of coast ports or distant inland cities are similarly cursed with the most lamentable apologies for roadways that modern man has had to put up with.

Considering the historic aptitude of the Chinese for solid constructional work there is no excuse for the conditions that now obtain. The Chinese people have a natural talent for engineering work which could easily have been developed for the good of the country by far-sighted officials. The magnificent bridges, the walls of cities, the great conservation works which still stand and defy time in numerous parts of the country are monuments in themselves to the genius of the past and should be constant reminders to all officials of the present period that continuation of the disgraceful policy of neglect which plunged the Manchus into oblivion will bring about the absolute ruination of the country and compel the much-dreaded foreign control or partition to be inaugurated.

That there are officials who fully realise the vital necessity that exists for immediate revision of methods of administration, and for the introduction of reforms making for industrial development is, we are glad to say, a fact, but it must be confessed that they are so far working against painful odds in the shape of a large body of conservative and ignorant adherents to office who contribute practically nothing in the shape of sound assistance to the government of the country. These men constitute the incubus which if not speedily removed will bring about the loss of the independence of China, cause her people to be placed under the tutelage of some foreign power or powers, and destroy the centuries-long record as a national unit which China has managed so far to maintain despite the great world-movements of past decades. The few officials in high places who are alive to the importance of development upon modern lines do when possible take occasion by the hand to advance the interests of China, but more often than not their efforts are nullified by the crassly stupid activities of misguided reactionaries.

That there is a great general improvement over the conditions which obtained five or six years ago, however, is undoubted, and it is to be hoped that the further evidence of realization of one of China's chief woes—a lack of roads—as furnished by a Mandate issued on February 27 will materialize in some forward policy being adopted calculated to improve the thoroughfares throughout the country. By properly systematising the work the Government could begin road building at once without recourse to foreign loans, there being sufficient prison labour available to make a great advance upon a road to serve as a model for the various communities who should themselves find the labour to construct sections of other roads within their own particular localities. Co-operation between Government and local officials should enable lengthy roadways to be built, and unless the Mandate referred to above, which is given below, is to be allowed to go the way of hundreds of others we ought before long to be recording a general awakening throughout the country to the importance of modern means of communication. The Mandate is as follows:—

It is the duty of the Government to facilitate the communications of the interior of the country. We have noticed in all foreign countries, that special efforts have been made by authorities to improve public roads. In former days the "official" roads and postal "sections" had the idea of national roads; but as the people have only followed the rules fixed in ancient time, no material improvement has been made. As we have been satisfied with the simple and primitive ways, we have been laughed at by men of experience. Since the introduction of steamers and railways, there have been great changes in connection with communications, rendering it more important to improve the public roads of the whole country. As the districts under the jurisdiction of the Metropolitan Prefecture, have been fixed as a model for self-Government system, the improvement of public roads should be promoted; and the Governor there is hereby instructed to institute an investigation regarding the roads which should be repaired. He shall divide all the roads into the "national" and the "hsien" ones; and by introducing improvements he shall set an example for other districts to copy. As to the roads in the villages and hamlets, he shall order the chiefs of the same to improve them according to local circumstances. The chief officials of the provinces and special administrative areas are also instructed to order their respective subordinate officials in the Tao or Hsien districts to proceed to improve the roads according to local condition. According to the custom of this country bridges and roads of the villages and hamlets are to be cared for by the inhabitants themselves, who have considered them as charity works. The local officials are therefore ordered to encourage them in these good works, and not to force them by influence. Those who have contributed large sums voluntarily and have achieved merits shall be liberally rewarded so that others may be encouraged. The Ministry of Interior is hereby instructed to draw up a set of regulations on the improvement of roads for our approval.

THE HOKKAIDO TIMBER INDUSTRY

The Wealth of Japan's Forests

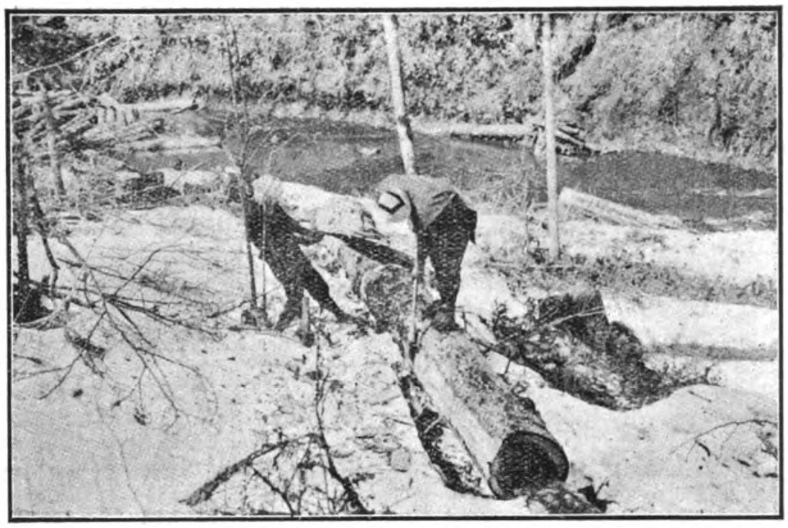
No country has a greater proportion of its total area productive of timber than Japan. With the exception of the Kuriles group and the summits of a few high mountains, because of the fertile soil and the humidity of the climate, there is no part of the whole Empire that is unsuited to the growth of forest trees, and hence the production of timber of practically every quality. These forests found everywhere have such luxuriance of growth that they are strikingly primitive in appearance. To reduce it to figures, the most recent statistics compiled on the economic development of the Empire show that the natural forest area is immense, measuring 19,173,717 cho, lacking just .3 of one percent of being one half the area of the whole country. And these figures do not include Formosa, Korea and Karafuto, nor do they include big stretches from which much valuable timber is marketed, known as *Genya*, or plains, a class of land established at the time of the land tax revision, inaugurated soon after the restoration.

Of all this vast area covered with forests, more than 25 percent, or 4,968,433 cho, is in Hokkaido, where the timber industry has been of much more recent development, but which now is exporting timber, logs and sawn lumber, consisting chiefly of pine and various grades of oak, to the foreign market. The mountain ranges, which cover the entire island with their lateral branches, constitute splendid forest lands, the conifers growing on the slopes, while at the tops and bases the broad-leafed trees predominate.

In 1914, the last year for which statistics are available, Hokkaido exported pine and oak, and a small amount of other Japanese wood, to the value of 6,519,222 Yen. Practically all of the export material was for furniture making and for railway sleepers. Of the entire amount China and Manchuria took approximately one third. America is another big user, purchasing timber to the value of 960,000 Yen in 1914. England, Belgium, Germany, Austria and Egypt are among the other heavy purchasers. The following table gives the returns of exports from Hokkaido for 1913 and 1914:

Destination.	1913 Yen	1914 Yen
China	2,196,351.00	1,988,636.00
Manchuria	631,110.00	744,443.00
Hongkong	14,344.00	9,512.00
India	148,259.00	62,713.00
British colony	6,228.00	25,035.00
Russia (Asiatic)	16,457.00	72.00
England	253,834.00	296,095.00

Hokkaido Lumberman's Camp



Japanese Lumbermen Sawing and Barking Log

France	188,142.00	185,414.00
Germany	65,726.00	294,554.00
Belgium	388,294.00	757,940.00
Italy	———	9,827.00
Austro-Hungary	4,584.00	2,757.00
Netherlands	250,165.00	100,808.00
Denmark	85,357.00	22,363.00
America	874,801.00	960,306.00
Canada	54,928.00	41,792.00
Austria	474,530.00	494,708.00
Hawaii	23,942.00	15,015.00
Egypt	536,457.00	478,583.00
Other countries	38,887.00	28,647.00
Total	6,252,396.00	6,519,222.00

The development of the timber industry in Hokkaido for the export market has been comparatively recent, beginning between ten and fifteen years ago. Since then there has been a steady and rapid expansion of the industry and the establishment of logging camps and saw mills. There are now on the island nearly fifty saw mills, scattered throughout the forest area, many of them large mills with a capital from 100,000 Yen to a quarter of a million Yen. All of the export lumber leaves through the three open ports: Rushiro, Otaru and Mororan. While the complete figures are still unavailable it is estimated the exports for 1914, including square and round logs, sawn lumber and sleepers were, in round numbers, 44 million cubic feet. In 1913 the amount exported was 39,421,774; in 1912 32,011,427, and in 1911, 27,795,692 cubic feet.

Hokkaido's forest resources are distributed as follows: Government forest, those belonging to the Imperial Household, the official district forest areas, the experimental forests for the Imperial University and those owned by public institutions and private individuals. While an official survey shows that these forest areas are productive of approximately fifty varieties of timber, including both those of the temperate and frigid sylvan flora, 67 percent of the availabe timber for logs and sleepers consists of oak and pine. The remaining quantity, available for the same purpose, consists chiefly of the Japanese woods, *Yama*, used for furniture; *Sema*, used for sleepers, and *Katsura*. A glance at the following figures showing the available quantity of timber in 1913 still available for logs and sleepers, in each of the variously controlled districts, shows the immense resources of the forests as they stand at present:

Imperial Household: Pine, 170,792,000 cubic feet; oak, 65,764,000 cubic feet; other kinds, 101,305,000 cubic feet; total, 337,861,000 cubic feet.

Government forests: Pine, 442,771,000 cubic feet; oak, 143,027,000 cubic feet; other kinds, 202,688,000 cubic feet; total, 788,486,000 cubic feet.

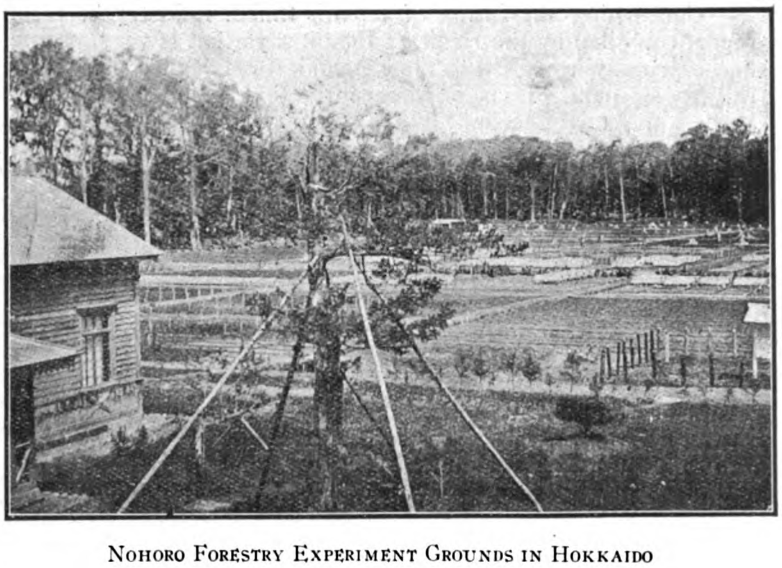
Official districts: Pine, 19,219,000 cubic feet; oak, 8,771,000 cubic feet; other kinds, 11,782,000 cubic feet; total, 39,722,000 cubic feet.

Imperial University experimental forests: Pine, 15,000,000 cubic feet; oak, 3,800,000 cubic feet; other kinds, 12,550,000 cubic feet; total, 31,350,000.

Owned by public institutions and private persons: Pine, 30,000,000 cubic feet; oak, 10,000,000 cubic feet; other kinds, 29,000,000 cubic feet, total, 69,000,000 cubic feet.

Thus it is seen that these resources total 1,266,419,000 cubic feet. The amount of oak totals 231,360,000, the amount of pine 677,780,000 and the other kinds 231,360,000 cubic feet.

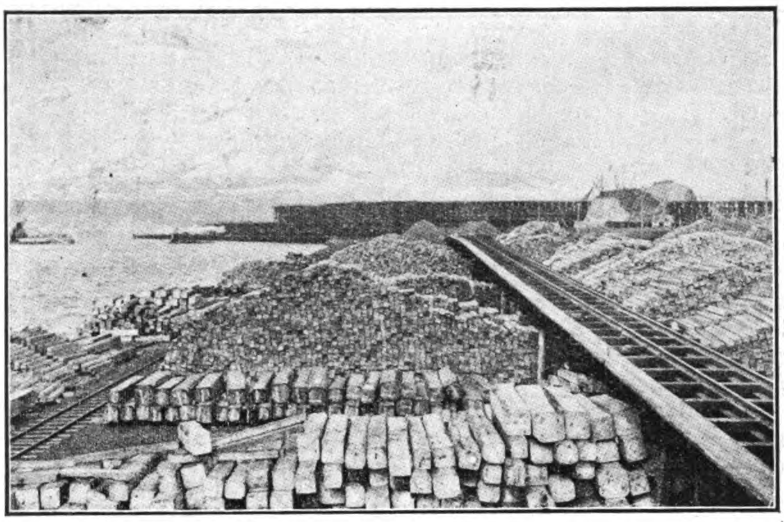
In addition to the owners of forests already mentioned there are some areas owned by temples and shrines, local governments and others. The figures given below shows the distribution of ownership of Hokkaido's entire forest land:



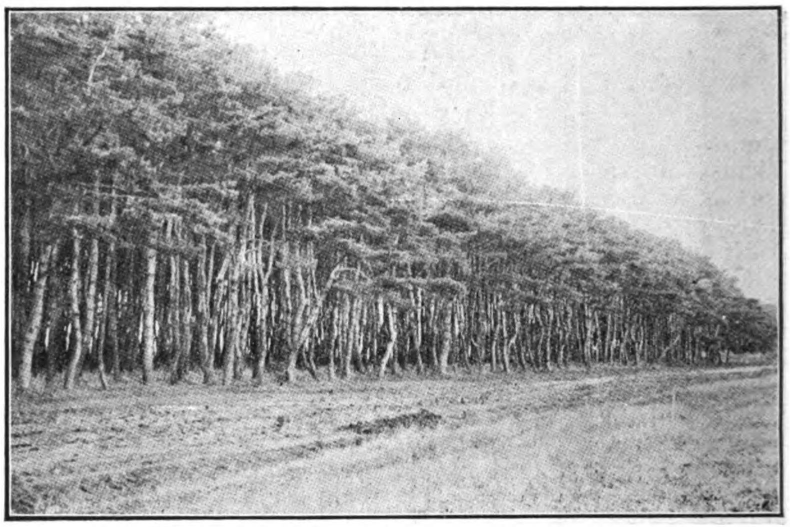
Nohoro Forestry Experiment Grounds in Hokkaido

Owners	Area
Forest belonging to the Imperial Household......	610,000 cho
Government Forest	3,674,000 cho
Experimental Forest for the Imperial University.	99,395 cho
Forest Owned by Local Office in Hokkaido......	188,737 cho
Forest Owned by Hokkaido Government	93,836 cho
Forest owned by Shrines and Temples	195 cho
Forest owned by Public Bodies	36,714 cho
Private Forest..................................	85,906 cho

It is interesting to note the exploitation and treatment that the Government has planned for the Hokkaido timber resources. All of the State Forests there, covering an area of 4,010,214 cho, are subject to the control of the Home Department, and the



HOKKAIDO TIMBER WAITING SHIPMENT



PINE AFFORESTATION AT YUNOKAWA, HOKKAIDO

interests of the nation and public at large are taken into consideration, according to a well-defined high rotation system and the authorities are planting the most important varieties of trees. Beginning in 1908 as a continuation-work of ten years the government began a program, which in brief, includes:

(1) Disposing of such forests as are unfit for State ownership; (2) final survey of all forests retained; (3) perfecting plans for operation of those forests needing immediate attention; (4) planting open or deforested areas and starting nurseries; (5) improving rivers and roads for transport and establishing fire zones; (6) purchasing private forests wherever necessary. For completing this plan in Hokkaido and in Japan proper, an expenditure of 23 million Yen will be necessary. Since general ideas on the preservation of the timber resources have only recently taken hold in Japan there are only a few cases of the management and exploitation of the private forests. In particular the forests belonging to the religious establishments, such as the Shinto and Buddhist temples, are in a most ruinous condition.

Concerning the future of Japan's timber industry, a recent report compiled by the Bank of Japan, says that is very promising, especially in regard to the demand for telegraph poles and railway sleepers. It is only recently that the government has started on its own account in dealing in timber and wood, heretofore disposing of the trees as they stood. The government now has several yards in Hokkaido, but in many instances the inaccessibility of the state forests has proved a handicap to profitable marketing, the report adds.—*Messrs. Sale and Frazar's Greppo*

FOREIGN TRADE OF THE HOKKAIDO

The commerce of the Hokkaido* has developed rapidly during the past few years. Up to a comparatively late period its foreign trade was credited to Yokohama and Kobe, the bulk of the exports from the Hokkaido being shipped by coasting steamers to Yokohama and Kobe and thence to foreign countries and the imports being entered at the same ports and then reshipped to Hakodate, Otaru, Muroran, and Kushiro.

For some years past trade has been developing on more direct lines; in fact, two steamship companies had made arrangements for a regular monthly service from the Hokkaido to Europe when the war put a stop to this. With the restoration of peace there is no doubt that direct communication with Europe will be established. There is already a fairly frequent service between Hokkaido ports and the Pacific coast of the United States by the steamers of the Robert Dollar Co. and the China Import & Export Lumber Co., of Shanghai, whose steamers call at Hokkaido ports whenever sufficient cargo offers.

Exports from the Hokkaido are constantly increasing. Some 16 years ago a foreign firm in Hakodate tried the experiment of shipping oak logs to the Pacific coast. This business rapidly grew until at the present time about 8,000,000 cubic feet are annually exported to all parts of the world, and in addition to this various other hardwood timbers, as well as railway sleepers, veneers, etc., are shipped. These go to the United States, Chile, Australia, China, India, Egypt, Cape Colony, Spain, France, Great Britain, Holland, Belgium, Italy, and Germany, and the demand far exceeds the supply.

The demand for peas and beans also exceeds the supply, and they are raised in larger quantities every year and exports will soon be over 50,000 tons a year.

The adjacent waters teem with marine life. Herring and sardines are caught in vast numbers and turned into fertilizer and fish oil. The fertilizer is used in Japan, while the fish oil is exported to Europe. It was the practice in the past to ship this oil from the Hokkaido to Yokohama and Kobe, where it was strained, lightcolored vegetable oils added (these being considerably cheaper than fish oil), and then exported. Of late years the direct export of fish oil has rapidly increased, the oil shipped from here not being mixed with vegetable oils and, although darker in color, being much preferred and commanding a higher price in Europe than the oil which has been handled in the southern ports.

The opening of the Panama Canal has given quite an impetus to the coal trade, and over 200,000 tons per annum are now shipped to Honolulu and used at that port for coaling ships that have come via the canal. The local fuel is of excellent quality. Sulphur and manganese are produced and shipped in large quantities; in fact for quite a number of years sulphur was the chief article of export from the Hokkaido.

The imports are principally agricultural and other machinery. The future of the island is agricultural. There is a rich natural soil, and very little artificial fertilizer will be required for some time to come. Manufactories are also springing up. There is an abundance of water power, and already several hydroelectric power plants are in operation, some of them with as much as 20,000 horsepower.

The Hokkaido's principal ports are Hakodate, Otaru, Kushiro, and Muroran. Hakodate has the finest natural harbor in Japan. The harbor in Otaru is protected by two large breakwaters, which make it safe and commodious. Kushiro was formerly little better than an open roadstead, but works now in course of construction will make this harbor one of the best in Japan. Kushiro will, in a few years, be the principal port for the export of cereals, being the natural shipping point for the rich and fertile Tokachi Valley. Muroran has a fine natural harbor.

* Yezo, the most northerly of the large islands of Japan, forms, with its 12 adjacent islands and the Kurile Islands, a division of the Japanese Empire known as the Hokkaido. It is separated from the main island of Japan by the Strait of Tsugaru. Area, including the Kurile Islands, approximately 30,150 square miles.

THE PORT OF LUNGKOU

Lungkou is about 60 miles due west of Chefoo, on the west coast of the Shantung promontory. It lies about 100 miles southwest of the Japanese port, Dairen. Newchwang and Tientsin are each about 200 miles distant from Lungkou. The port is well sheltered by the Chiriutao Peninsula. It appears there is a narrow channel which admits of steamers of 12 feet draft anchoring within a few hundred yards of the shore; otherwise the port is shallow with a sand bar stretching out for considerable distance. The harbor of Lungkou (Dragon's Mouth) is 7 miles wide at the entrance and has a sand bar which forms a breakwater for 5 miles across the opening. The inner harbor, according to information, has a low-water mark of from 11 to 13 feet, and storms seldom disturb the shipping inside. The business of the port closes and opens each year with Tientsin and Newchwang, because the total business from other points does not at present require the attention of the foreign agent. The same irregular steamer which plies weekly between Chefoo and this port also touches at Tengchowfu, Tiger Head (off Laichowfu), and Yangkiakow. A large coolie traffic is carried on at Lungkow at the opening and closing of Newchwang. The town of Lungkou has a population of about 4,000. It is estimated that within a radius of 5 miles of Lungkou there is a population of 65,000. A level stretch of country behind Lungkou thickly populated and very fertile would make it appear that the port may some day assume considerable importance. The proposed Chefoo-Weihsien Railway would result in connecting Lungkou with both Chefoo and Weihsien, thus with north and central Shantung.

The opening of this port to foreign trade is due to overtures made to the Chinese Government by Japan. The waters about Lungkou abound in good fish, especially the "tai," which commands a splendid market in Japan. There is a large passenger trade between Shantung Province and Manchuria. Between 50,000 and 100,000 Shantung natives migrate to Manchuria each year for the summer crops, returning again in the fall or early winter. The Japanese at Dairen are desirous of controlling this passenger traffic and will be better able to do so through the opening of the port of Lungkou than otherwise. At present the bulk of this traffic goes from Chefoo and Tsingtau. As Dairen is but 120 miles from Lungkou, it will be possible to divert much of this passenger traffic to Lungkou, where Japanese steamers will probably be prepared to take it at a lower rate to Dairen than would be possible from Chefoo or Tsingtau, especially so when the railroad is completed connecting Lungkou with Weihsien.

Likewise will Japanese interests in Dairen be able through the port of Lungkou to share in the general import and export trade of Shantung in a far more extensive way than was possible under former conditions. It appears that Japan, with the opening of the port of Lungkou, is preparing to do everything possible to make the trade of that section of Shantung Province north of the German railway tributary to Dairen. Recently there was organized in Dairen with Japanese capital the Lungkou Bank, capitalized 100,000 yen ($49,800) to develop trade between Dairen and Lungkou. Japanese hucksters are to be seen going about the interior of the northern section of Shantung drumming up trade.

There is no feeling among the foreign merchants of Chefoo that the opening of Lungkou will greatly affect the trade of the port. It is not anticipated that any foreign interests other than the Japanese will avail themselves of the port. The construction of the proposed Chefoo-Weihsien Railway, along with the completion of the Chefoo breakwater, should result in making Chefoo an outlet for much of North China—that is, provided arrangements can be effected whereby this railway may be connected with the Tientsin-Pukow line. It is not to be expected that the Chinese Government will for many years at least undertake extensive harbor improvements at Lungkou. Without extensive harbor improvements Lungkou can not accommodate more than two or three vessels of 12 feet draft at one time at anything like a reasonable distance from the shore, so shipping men here testify. The opening of the port will materially assist Japanese interests at Dairen and help Japan to contest with Germany trade supremacy in northern Shantung.

EXPORT TRADE OF HONGKONG

In exports in general from Hongkong there has been some slackness in the demand for articles of luxury or ordinary use during the first 9 months of 1915. Shipments of tin to Great Britain, for example, increased from 2,444 slabs during 1914 to 26,476 slabs in the 1915 period; shipments to the continent of Europe decreased only from 20,392 to 17,843 slabs, wh le shipments to the United States and Canada increased from 22,704 to 46,127 slabs. The total shipments increased from 45,540 slabs in the 1914 period to 90,446 slabs for the 1915 period. These slabs weigh 112 pounds each.

Shipments of matting to Great Britain during the nine months increased from 24,823 to 40,994 rolls, those to continental Europe decreased from 80,176 to 14,771 rolls, and those to the United States and Canada decreased from 90,104 to 56,902 rolls. The total shipments decreased from 195,103 rolls for the 1914 period to 112,667 rolls for the 1915 period.

Exports of preserves, mostly ginger, to Great Britain decreased from 30,534 cases in the first nine months of 1914 to 26,298 cases in 1915; those to continental Europe from 4,741 to 763 cases; and those to the United States and Canada from 3,905 to 1,543 cases. The total exports decreased from 39,180 to 28,604 cases.

Shipments of silk piece goods to Great Britain amounted to 180 cases as compared with 152 cases for the first nine months of 1914; shipments to continental Europe decreased from 234 to 140 cases, while shipments to the United States and Canada decreased from 604 to 260 cases. Exports of waste silk to Great Britain amounted to 8,191 bales compared with 7,630 bales in 1914; those to continental Europe fell from 9,104 to 1,212 bales, and those to the United States and Canada increased from 5,163 to 13,482 bales. The total exports decreased from 22,458 bales for the 1914 period to 22,324 bales for the 1915 period.

Exports of cassia to Great Britain increased from 2,335 to 12,800 cases; those to continental Europe decreased from 59,976 to 14,310 cases, and shipments to the United States and Canada increased from 33,114 to 44,957 cases. The total exports decreased from 95,425 to 72,067 cases.

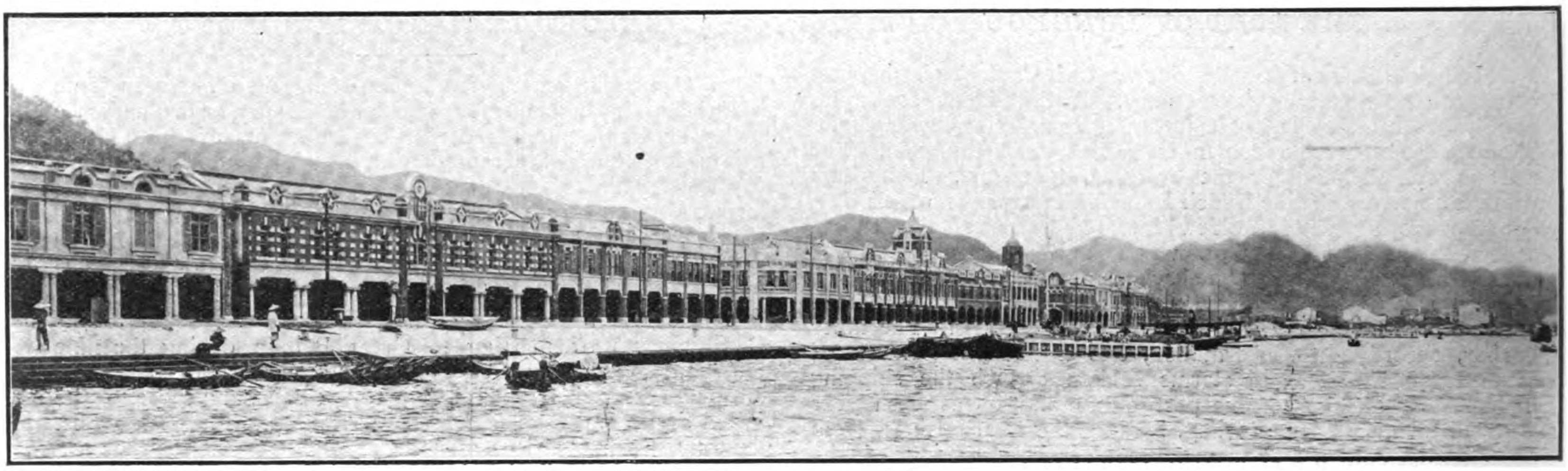
There were increased shipments generally of soy, essential oils, bristles, gunny bags, and rattan and rattan ware, particularly to the United States. There were decreases in exports of canes, chinaware, human hair, feathers, hemp, firecrackers, tea, nut oil, and most miscellaneous Chinese produce.

WORLD'S COTTON SHORTAGE

The total area and yield of cotton reported from India in 1915 shows a falling off of 27 per cent from the 1914 crop according to the final estimate issued by the Directorate of Statistics on March 3. The total area reported is 17,967,000 acres or 6,628,000 acres less than last year. The total estimated yield is 3,819,000 bales of 400 pounds each while the 1914 yield was 5,209,000 bales. According to the International Institute of Agriculture in a report issued at Rome last month, the United States also will have a decreased yield, which may act in sympathy with the shortage in India and Egypt, to bring about a large increase in prices.

The yield in the United States will be some 10,640,000 bales of 500 pounds each as against 16,080,000 bales in 1914, a decrease of 5,440,000 bales. That of Egypt is 1,200,000 bales against 1,700,000 last year. Reduc ng the bale yields to pounds it will be found that the total output of cotton from the three countries in question will be 3,486 millions of pounds less than in 1914.

Accurate figures on the Chinese cotton crop are unobtainable, while those for Russia are not yet at hand although the prospects for the Russian crop are said to be good. The Russian acreage and yield also are believed to have suffered a huge shrinkage.



THE BUND AT KEELUNG

TAIWAN (FORMOSA) AND ITS EXPOSITION

On April 10, the Formosan Government will open an exposition to which it has invited the world and by which it proposes to show to the world the advances that have been made in Formosa since the Japanese took over the Island at the close of the Sino-Japanese war in 1895, this being ceded to her in lieu of Liaotung Peninsula, which spoil of war she was prevented from taking by the powers led by Russia, but later took it herself.

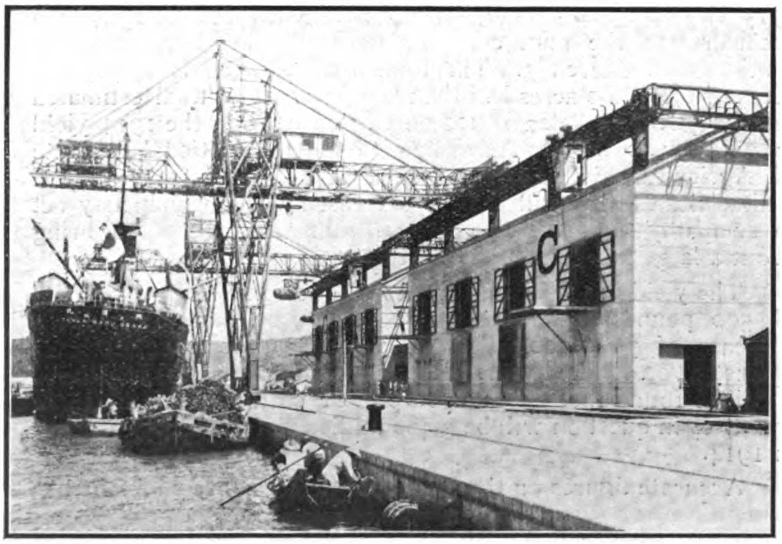
The reports of Formosa, or Taiwan as it is called by the Japanese, who have reverted to the ancient Chinese name, are issued for the most part in Japanese so that the outside world has had little opportunity to judge of the progress that has been made, and those who visit the exposition to view it with an understanding eye, will perceive at once the vast gulf that has been created between the Formosa of 1895 and the new Taiwan,—a hive of industry in which the slothful native has been compelled to mend his ways and conform to the Japanese idea of efficiency.

Taiwan's exposition will also be illuminating to those visitors from the United States, who have been of the opinion that even were the United States to withdraw from the Philippines, Japan would not care to occupy them since the Philippines have a warm climate and are unsuited to the Japanese, forgetting that the climate of Taiwan for the most part is identical with that of the Islands now enjoying the protection of the American flag, and which lie only a few degrees south of Taiwan.

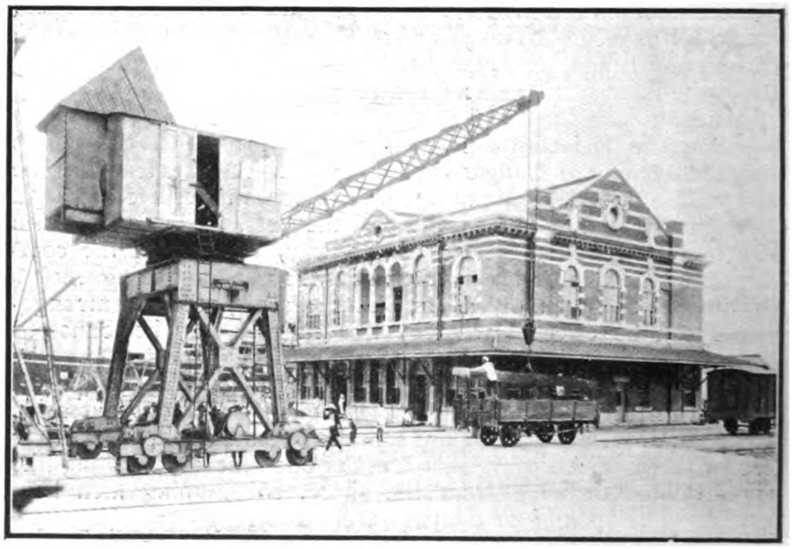
Japan has done her work thoroughly in Taiwan and has not been content to sit quietly as a collector of revenue at its ports, but at great expense both in money and men, has succeeded in bringing the Island to a productiveness that will seem marvellous when viewed by the Filipino or even by the American Administrators of the Philippines, some of whom we learn, will visit the Taiwan exposition. The following summary of the improvements inaugurated and carried through by the Japanese, therefore, should be read by Americans and Filipinos alike, with an eye to contrasts and comparisons, since the experience of the Japanese in Taiwan is similar in many respects to that of the Philippines.

As to the effect on the population of the relative systems of civilization and the methods of introducing them, the reader familiar with the work of the United States and the Philippines must draw his own conclusions, but the fact that upwards of five hundred Formosans have been executed for conspiracy within the past year, might well give the Filipino reason to pause and reflect as to whether he has been so harshly treated under American administration and whether he is really ready for the United States to withdraw, giving him a chance at independence, which might end in anarchy and subsequent Japanese occupation of the Islands.

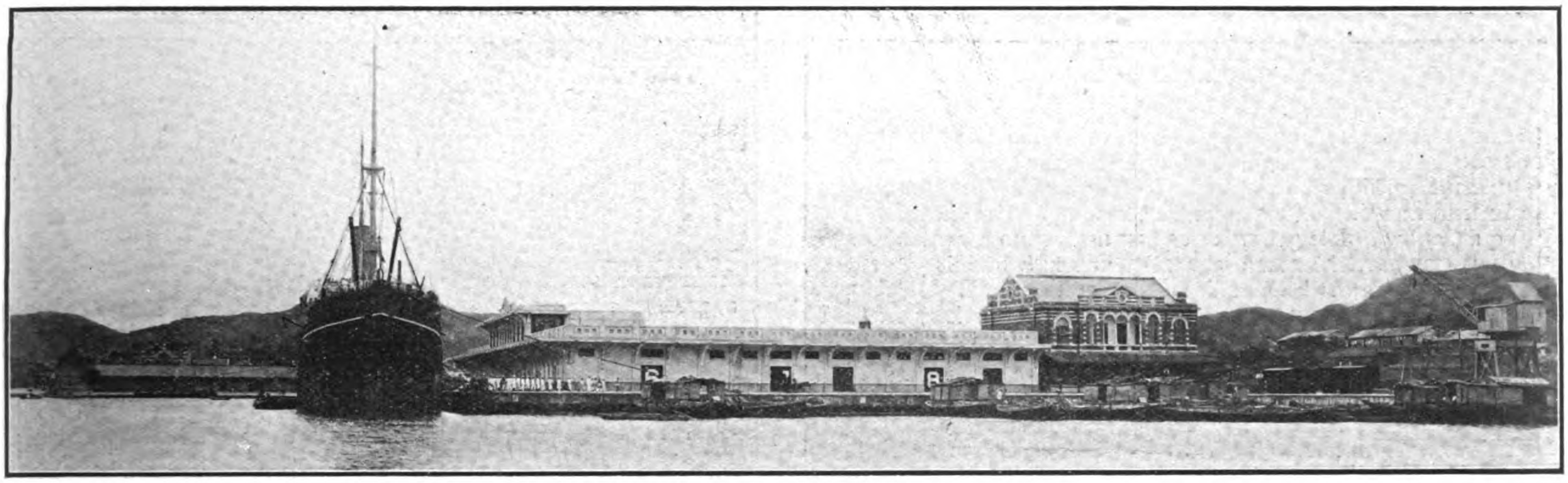
The purpose of this article, however, is not to call attention to possibilities, but to present actual facts and conditions as they are in Taiwan to-day after twenty years of Japanese occupation, and it must be said that the difficulties met by Japan in this island,



REMOVING CARGO AT THE TAKAO RIVER



TEN TON ELECTRIC CRANE LOADING RAILWAY CARS



THE FIRST MODEL WAREHOUSE BUILDING AT KEELUNG

the greater part of whose area is mountain and forest, have been much greater than those met by the Americans in the Philippines, barring the years of the Philippine Insurrection, since even to-day the Japanese are not in complete occupation of Taiwan, but are compelled to wage a systematic and increasing warfare against the wild tribes of the mountain heights. The following facts and figures regarding Taiwan and its people have been translated from Japanese reports regarding the progress of the Island:

Orography of Taiwan

Taiwan is the general name for the main island of Taiwan, the Hoko-to group (the Pescadores) and the adjacent islands. It is situated between 21° 45′ and 25° 38′ N. Latitude and between 120° 2′ and 122° 6′ E. Longitude. It has a circumference of 398 ri (1 ri=2½ miles), and an area of 2,332 sq. ri, being nearly equal to the island of Kyushu. The main island is oblong, stretching from north to south, with mountain ranges extending throughout its length. These mountains constitute a watershed, sending short rivers to the east and the west. These rivers have rapid currents and wide beds, and as they are fed by numerous tributaries, they afford great facilities for irrigation. The soil is rich, bearing annually two crops of rice. Of the mountains several are over 10,000 ft. high, such, for instance, as Niitaka Yama, Gundai San, Sylvia San, Tandai San, Zensan, and Kwanzan. Among these the Niitaka is the highest, being 13,020 ft. above sea level. On the plains are found wide stretches of rich cultivated fields, while the mountains are covered with primeval forests, shielding natural resources of great value.

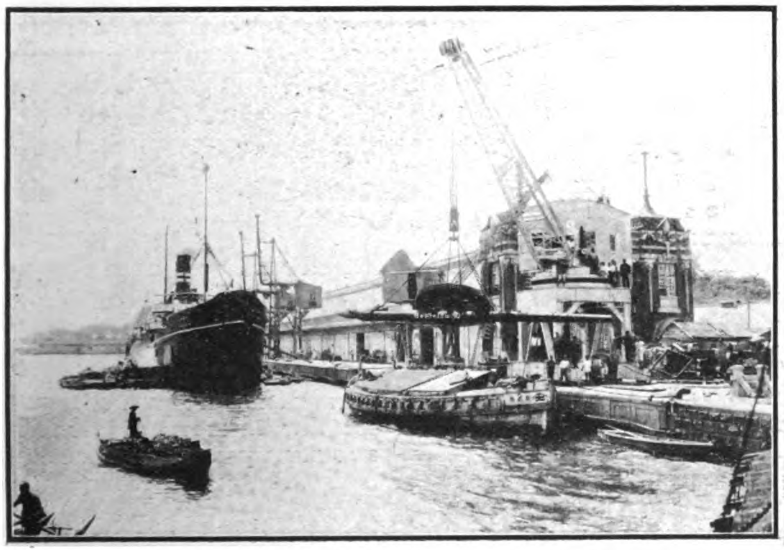
On January 1, 1914, the taxable lands amounted to 661,309 ko (Ko =2½ acres), yielding taxes of 3,083,118 yen, non-taxable lands to 137,511 ko, uncultivated lands exempted from taxation to 92,161 ko, and newly reclaimed lands exempted from taxation to 7,484 ko.

Irrigation, Reservoirs and Canals

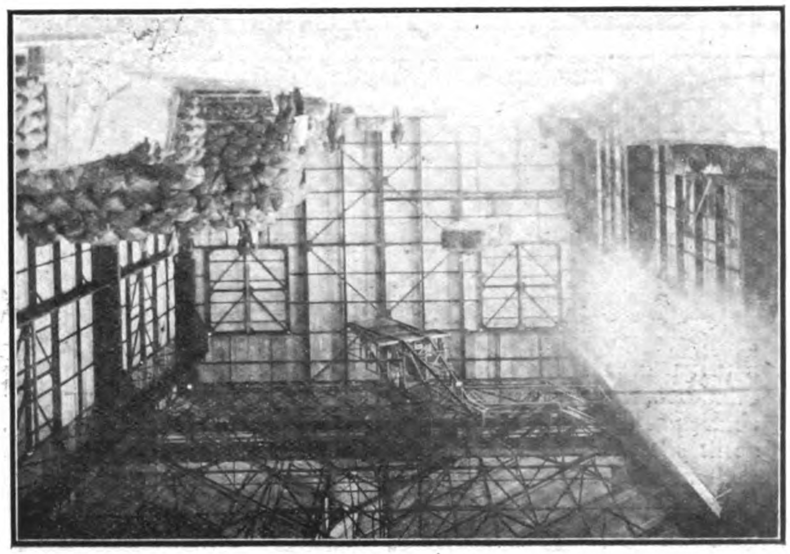
Taiwan possesses a highly developed system of irrigation, the oldest reservoirs and canals dating back two hundred years. Due to them the production of rice in Taiwan amounts annually to as much as four million koku of unhulled rice. The work of irrigation formerly was left to the private enterprise of individual farmers. To secure further extension and completion of the system the Government in 1901 assumed supervision over the management of irrigation works intimately connected with the interests of the public in general, and in 1914 there were 180 of them, irrigating a cultivated area of 239,082 ko from which the revenue is Y1,181,103. The Government in 1909 adopted a plan of government irrigation works, involving the disbursement of 20,000,000 yen spread over thirteen successive years, in which fourteen irrigation works are being constructed, to irrigate 118,000 ko of lands. The water power at the upper portion of the canals will be utilized for generating electricity to be conducted to important cities and towns of the island for lighting as well as for supplying power. Shishihto, Kori and three other places are included in the scheme whereby streams will be utilized for power besides serving the primary object of irrigation. When the scheme is fully completed it is expected that 10,750 H. P. of electricity will be generated.

Forests and Wild Lands

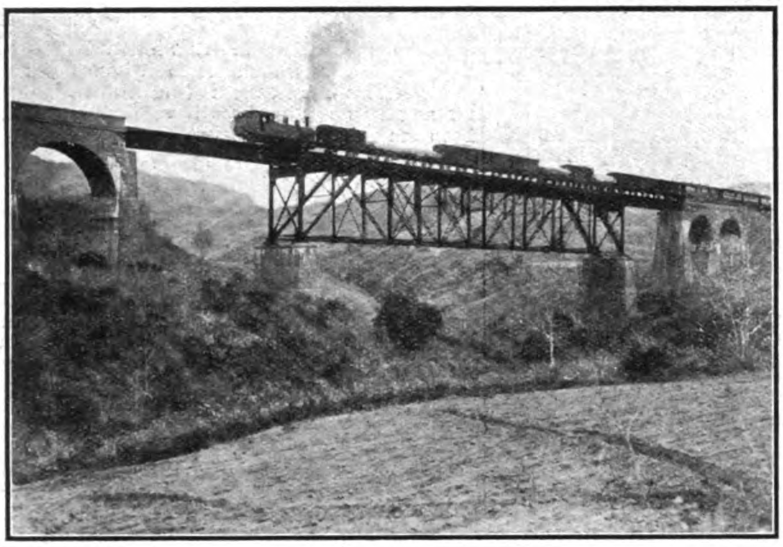
Taiwan is rich in forests, but no accurate statistics of the area covered by forests and wild lands on their borders are obtainable as yet, although a fairly reliable estimate puts the



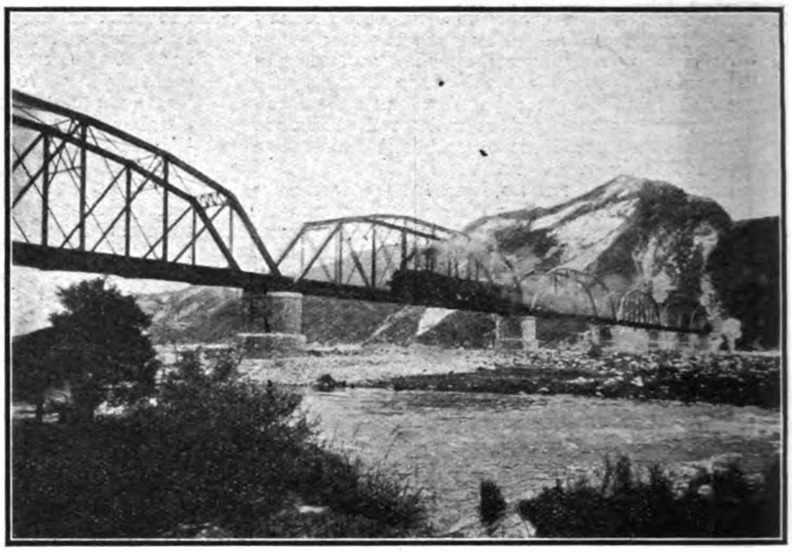
THIRTY TON ELECTRIC CRANE BEING TESTED TO FULL CAPACITY



GOVERNMENTAL PADDY GRANARY ON THE TAKAO RIVER



Yui Sung Peng Bridge

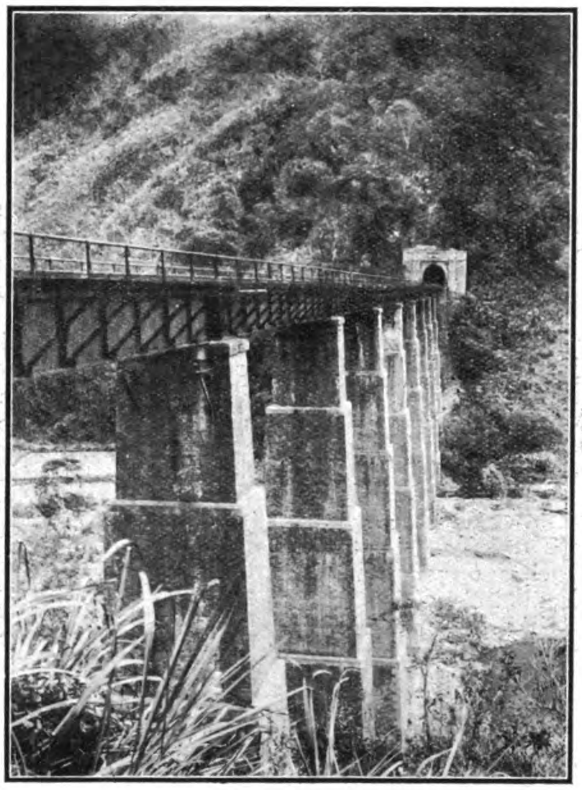


Ta Kak Chi Bridge

figures at 2,900,000 ko covering forest, wild lands and river beds traversing them. The forests of Taiwan comprise vegetations belonging to tropical, sub-tropical, temperate and even to semi-arctic climates. The forests in the civilised parts of the island under Chinese rule had been to a large extent cleared of trees, partly for agricultural purposes and partly from indiscriminate felling for timber and fuel. Of late years, however, the work of reforestation has been encouraged. The utilization of forests in Taiwan is still in a state of infancy. In the past the only use made of private owned forests has been the customary cutting of trees for fuel and timber for repair work. As for the official exploitation of forests, the camphor industry is the only enterprise worth mentioning.

The lease and sale of forests and wild lands is carried out under the Regulations for the Provisional Sale of Forests and Wild Lands, the total area disposed of thus up to the close of 1915 amounting to 55,000 ko. The total area of forest and wild lands either sold or transferred from the beginning of Japanese rule up to the end of 1915 amounted to about 126,800 ko.

The famous Arisan forests, which are being exploited by the Government of Taiwan, are situated within the savage land limits, and comprise a total area of 11,000 ko, containing timber estimated at 18,300,000 shaku-jima (Shaku-jima=1 cubic foot). These forests are found at altitudes ranging between 2,800 ft. and 8,700 ft. above sea level, and are reached by a forestry railway of 41



Na Zeu Chuen Bridge

miles. The exploitation of these forests originally started as a private undertaking, was transferred to the Government through purchase in 1910.

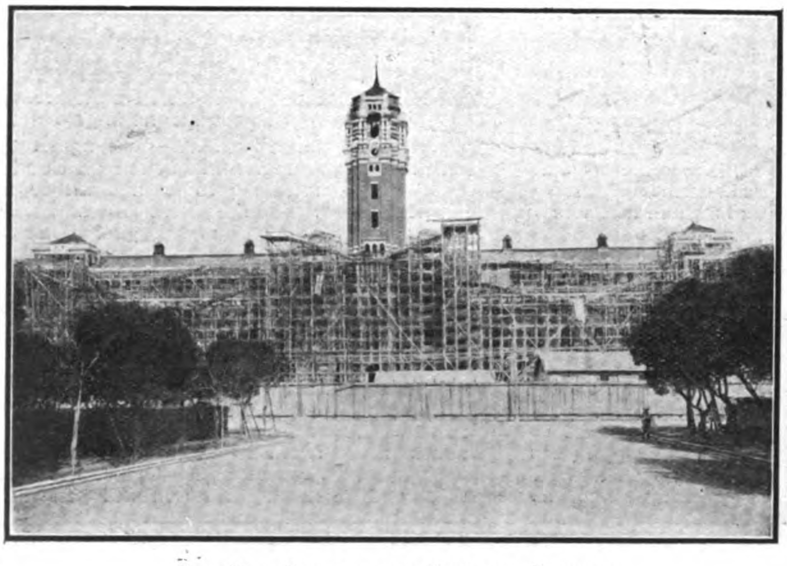
The forestry railway extends from Kagi Station to Nimanpei, Arisan. It is a mountain line, going up as high as 6,600 ft. above sea level, with a gauge of 2 ft. 6 in. and a greatest gradient of 1/20. The work of construction of the first section between Kagi and Jujiro, a distance of 34 miles, was commenced early in July, 1910.

Timber Felling

These primeval forests contain many old trees which should be felled as soon as possible, and the Government has adopted the plan of entirely renovating the Arisan forests in thirty-five years, by felling certain portions each year and reforesting them afterward. According to this plan the average felling each year will amount to 350,000 shaku-jima of timber.

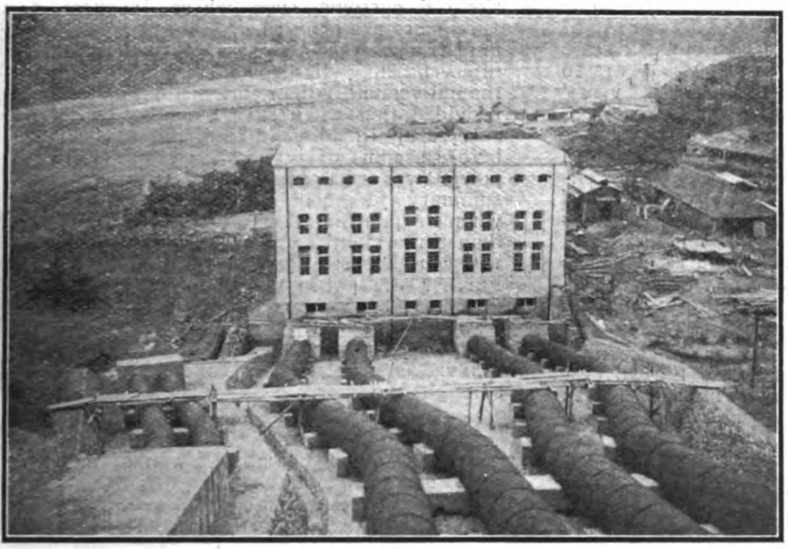
The timber is brought to a convenient spot on suspended cables. From Nimanpei, the terminus of Kagi-Nimanpei Forestry Railway, a railway is being extended at the rate of two miles a year, to accord with the progress of felling trees.

A saw mill has been built at the Kagi terminus of the forest railway using the latest improvements in machinery. In the choice of machinery and in arranging the mill yard, the object kept in view was the economy of labor in the handling of timber. This saw mill, running at full capacity, turns out annually 200,000 shaku-jima of prepared lumber. The

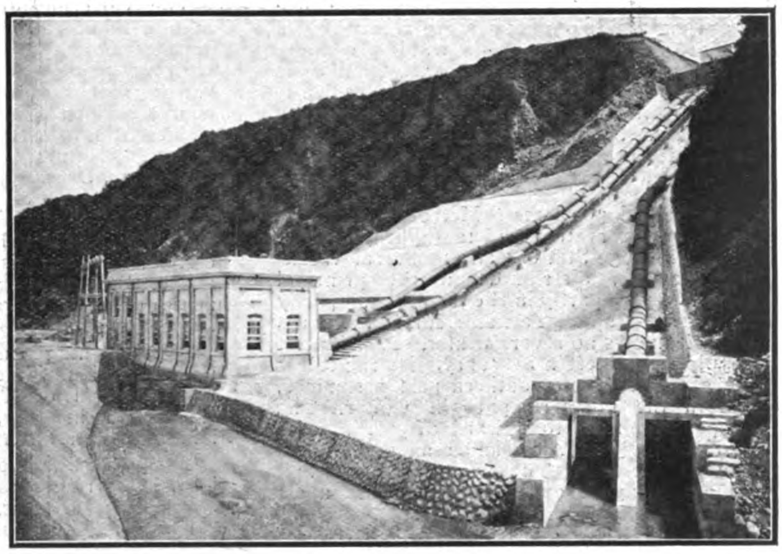


The New Court of the Governor General

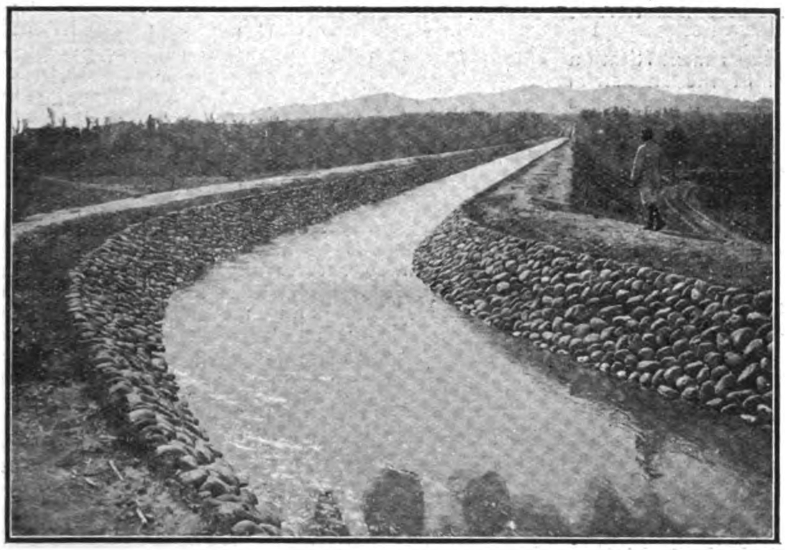
The Taihoko Temple



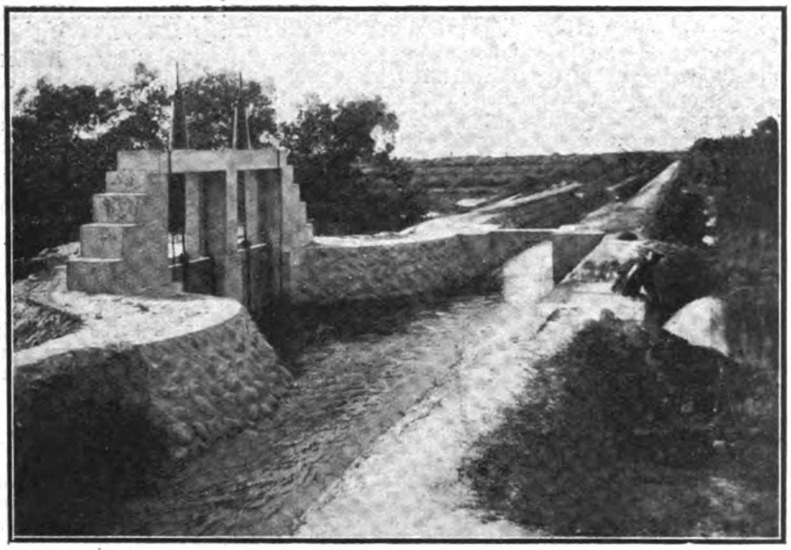
Electric Light Works under construction at Loh Kwe Li



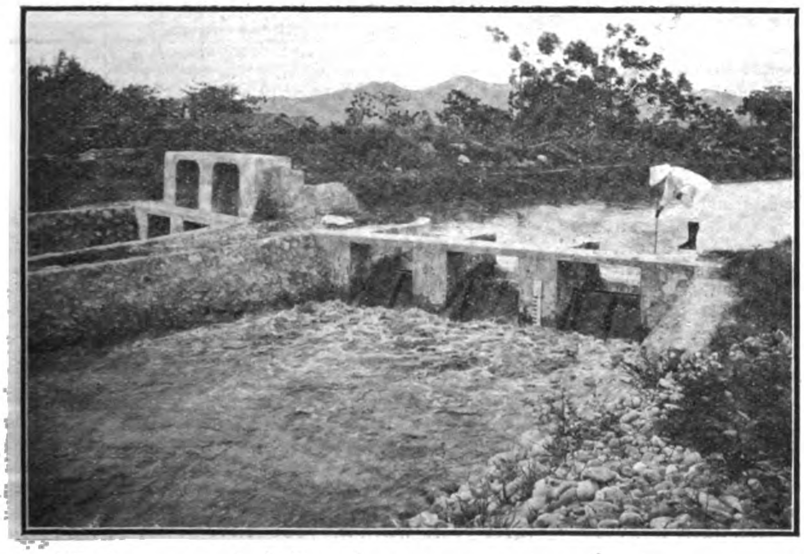
Electric Light Works at Ieu Li Zen



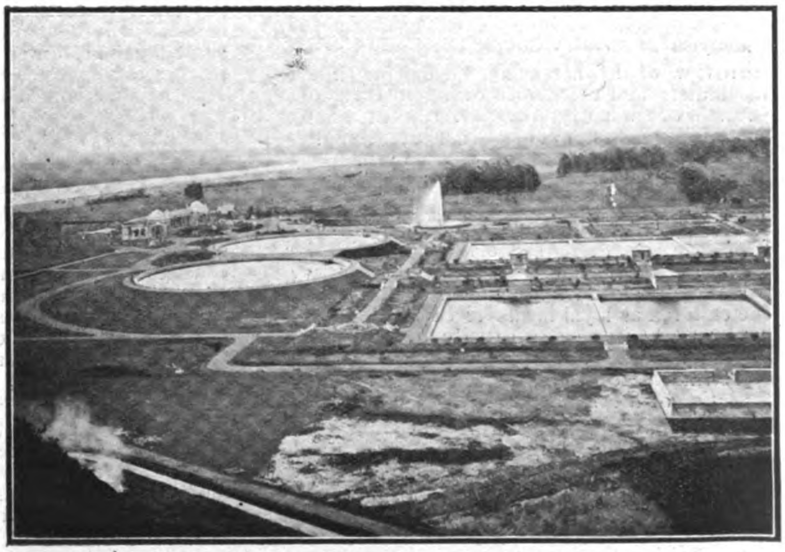
Roadway Along Irrigation Canal



The Ieu Li Zen Dam and Sluice



The Sze Taz Den (Lion's Head) Dam and its Sluice



The Taihoku Water-Works

buildings of steel-concrete frame are fire proof and the two big saws are able to cut a timber of 6 ft. diameter; the whole machinery being run by electric power. Timber is brought to the mill on suspended cables, while inside it is moved about by an automatic apparatus. Sawd·st and clapboards are used as fuel for producing electricity.

Climate of Taiwan

The island possesses 6 Meteorological Stations, 1 Observatory and 10 Light-houses, 71 Rainfall Gauge Stations and 18 Storm Warning Stations, distributed in the principal centres. Lying partly in the tropics and partly in the sub-tropics, Taiwan's summer is long, while it knows no severe winter. It is hottest in July and coldest in February. Its rainfall is the greatest in the southern part in summer, and in the northern part in winter. The temperature rises to upward of 90°, in some years as early as April and remains there as late as October. The winter is mild and seldom brings frost, while it never snows except on the highest mountains.

Education of Formosans

The first attempt at introducing modern education was made in May, 1895, when the Educational Office was opened in the newly established Government of Taiwan. But Taiwan was at the time not yet wholly pacified, and in the midst of military activities no permanent school could be established. The members of the Educational Office, however, gathered together a few native children and taught them the Japanese language. It was an experiment, but repaid the labor by giving the teachers much needed experience. In September a class of 21 native Formosans was formed and proved a success. But on New Year's day an insurrection broke out, the city of Taihoku was surrounded by insurgents, and in the affray some of the teachers were killed.

In May, 1896, the National Language School was established at Taihoku, and similar but simpler schools were opened in important towns. In July, 1898, Elementary Schools like those in Japan proper were established for the benefit of Japanese children. In April, 1899, normal schools were established for training native teachers, but were abolished later, it being regarded more convenient to have native teachers attend the National Language School. In May, 1907, a Middle School was established at Taihoku, and as its annex a High School for Girls (these replacing the boys' and girls' middle grade departments at the Japanese Language School).

Besides these attempts at education of a general nature, industrial and other special schools have been established. At Taihoku there was established in 1898 a School for Training Policemen and Prison Officers, in 1899 a Medical School, in 1900 an agricultural course at the Agricultural Experiment Station, in 1908 a Sugar Industry Course, and in the same year a Forestry Course.

In view of the increasing demand for skilled machinists and mechanics owing to the rapid growth of industry, the Government finally established a Technological Institute, completed in 1913 at an expense of 150,000 yen.

"Ko-gakko"—Public Schools are primary schools for native children and are established under the control of prefectural authorities. The aim of these schools is to teach the Japanese language and give all the ordinary moral and mental training necessary for fitting the children as loyal members of the Japanese nation. The course is usually of six years. Attendance is not compulsory, and the establishment of these schools is left to the initiative of local communities.

The Primary Schools for aborigines also are under the control of prefectural authorities. The teaching is regulated to fit the special conditions of the tribe in which it is established. The course of four years contains Morals, the Japanese Language and Arithmetic, sometimes Agriculture, Manual Training or Singing being taught in addition.

The Government General maintains one middle school at Taihoku, for the benefit of Japanese boys. The course lasts for six years with an additional course of two years to which graduates are admitted. The six years' course comprises National Morals, Japanese, Chinese, English, History, Geography, Mathematics, Natural History, Physics and Chemistry, Drawing, Singing, Practical Training and Gymnastics. In the higher two years' course are found English, Law, Economics and an additional foreign language. A distinctive feature is dormitory life, which is expected to inspire the boys with ideals of noble personality through training in etiquette and social life.

The Training Institute for Policemen is under the immediate control of the Government General of Taiwan. The school was established in July, 1898, and sends forth annually several hundred graduates.

The Medical School was established in 1899 by the Government General for native doctors and public surgeons. The Agricultural Experiment Station is under direct control of the Government General, and carries on experiments and researches for the improvement of agriculture; trains pupils in agriculture, forestry and veterinary practice; distributes seedlings, silkworm eggs, new breeds of domestic animals, and fowls; analyzes the composition of soil, fertilizers, agricultural products, etc.; and in general gives guidance and instruction by public lectures in matters of agriculture.

The Sugar Industry Experiment Station also is under the control of the Industrial Bureau of the Government General and makes experiments and researches in all matters concerning the sugar industry, at the same time giving a course which was opened first in 1905.

There are eight daily papers and thirty-one periodicals issued in Taiwan, their number constantly increasing.

Religious Institutions

The religious conditions of the Island must be said to be somewhat chaotic; the religions introduced from outside, Roman Catholic and Protestant Christianity as well as Shintoism and Japanese Buddhism, being found side by side with the religions originally existing, Confucianism, Taoism and Buddhism. Christian Missionary activities began long before Taiwan passed into Japanese possession, the Roman Catholic mission being in the hands of Spanish priests and the Protestant under the missionaries of the Presbyterian Church of Great Britain. These missions are engaged also in the work of education and charity, and in education, etc., meet with considerable success. Shintoism, Japanese Buddhism and Christianity are being propagated with much zeal but as yet with little success. The cult of the natives seems to consist in worshipping a curious mixture of deities. There is no question that the natives show much zeal in attendance at their temples. In 1915 there were 9 Shinto, 60 Buddhist and 192 Christian churches or preaching halls.

Judiciary System

When Taiwan passed into Japanese possession in May, 1895, law courts were established in accordance with the provisional regulations of the Governor-General in Council, issued under a military administration. These courts consisted of one Central Court with branches. When the military administration was abolished, civil administration was introduced by establishing Local Courts, Courts of Appeal and the Supreme Court. In 1898 the Supreme Court was abolished, making the trial at the Appeal Court final.

In all civil cases, the Japanese Civil and Commercial Codes are applied where Japanese or foreigners (Europeans) are litigants while the judgments in cases in which the natives of Taiwan or Chinese are concerned, are based on the old customs of the Island. The natives and Chinese, however, come under the operation of the Criminal Code. In actions concerning real estate the judgment is based on the old customs, even where Japanese or foreigners are concerned. In 1904, local administrative officials were given power to intervene in civil disputes occurring among the natives under their jurisdiction, and it was provided that when such a mediation prove successful, the dispute shall not be brought before a court of justice. In criminal cases, power was conferred on the police to pass summary judgment or immediate decision when the punishment involved was no heavier than three months imprisonment or a fine of 100 yen thus saving both time and expense. Further the police were empowered, when deemed advisable, to substitute a fine for an imprisonment of three months or less, and flogging for a fine of 100 yen or less. These innovations meet special conditions existing among the natives.

Distribution of Police

The first introduction in Taiwan of modern police system dates back to August, 1895, when 70 police sergeants and 700 policemen were landed at Taihoku and sent to places of importance in the interior. In April, 1896, a police force similar to that in Japan was organized and increased to 230 police sergeants and 1,387 policemen. The police force thus greatly strengthened in number was found still inadequate to preserve peace; and in order to give better protection to peaceful inhabitants what was called a three-fold policing system was adopted in 1898.

Under this system the subjugation of insurgents hiding in the mountains was entrusted to the army, the policing of settled villages to the ordinary police, and the lands between these two guard lines were placed under the joint care of the gendarmerie, and police. For some years natives have been employed as assistants to the police with markedly good results. It is largely due to this perfected system of police administration that operations against insurgent uprisings have been so successfully carried out. The police also have the work of keeping track of the households and movements of the people.

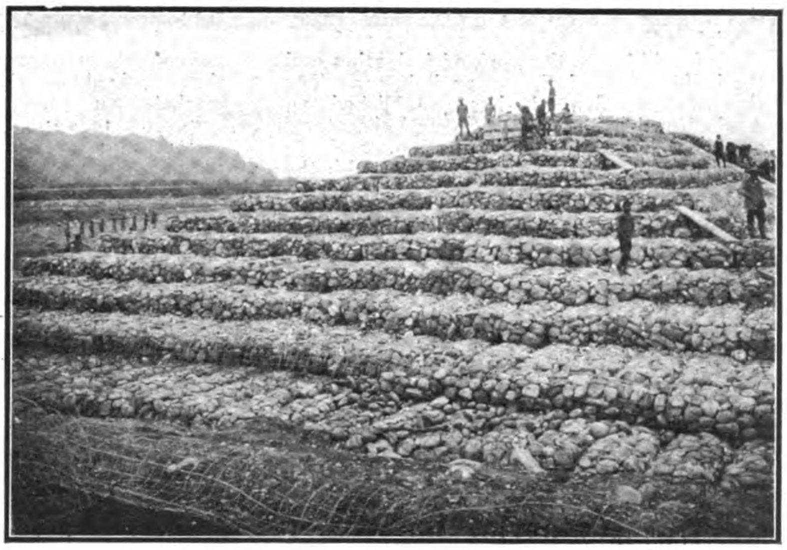
Aborigine Affairs

In 1896 all affairs connected with aborigines and aboriginal regions were placed in charge of the Industry Department of the Civil Administration Board; and there were established 11 stations for the domestication of the aborigines. After various changes the Aborigine Affairs Regulations were issued establishing Districts presided over by a Police Inspector.

The aborigines, divided into many tribes, occupy more than one half of the area of Taiwan, their total population being estimated at about 120,000. There are nine main groups of tribes:—the Taiyals, the Saisset, the Bunnun, the Tsuou, the Tearisen, the Paiwan Piyuma, the Ami and the Yami. Among the various tribes, the most warlike and ferocious are the Taiyals. The main strength in advancing the "aiyu" or "guard line" is directed against this tribe. The Bunnuns and the Paiwans are also daring savages; but they may be regarded as tractable in comparison with the Taiyals. Living in plains, the Amis have more chance to come in contact with civilization, and are gradually becoming accustomed to agricultural life. The Yamis, who live in solitary islands, are the most backward.

The work of domesticating the aborigines is carried on by teaching them industry, by giving them education and free medical treatment. The aborigines are not entirely unacquainted with the tilling of soil. Their usual method consists in burning forests or plains, and sowing or planting the upland with rice, millet, potatoes, beans, etc., after slightly scratching the soil (some of them sow seeds without tilling). They do not really cultivate; nor do they ever fertilize lands. After two or three years when the productive power of land gives out they turn to new places to repeat the process. The Government has opened, in several prefectures, model farms for teaching

Making Iron Wire Dike Forms



The Iron Wire Dike System in Place

simple farming methods, such as hoeing, weeding, etc.

The art of weaving is not unknown among the aboriginal women. Though rude in construction they have looms on which they weave cloth for household use or for barter. Five training institutes to teach them an improved method of weaving have been opened.

At the children's training institute in Toyen Prefecture an instructor skilled in the use of the lathe is employed to teach the aboriginal boys the making of wooden trays, bowls, etc. They have readily taken to this handicraft. At a similar institute in Kagi Prefecture rattan working is being taught the aboriginal boys and young men.

Between 1896 and 1901 attempts were made to give the rudiments of education to the aboriginal children, but with little or no result. Only after the latter year, when the education of aborigines was placed in charge of the Prefectural Governments has the work been carried on under a uniform plan with something to show. In 1905 ten public schools for the aboriginal children were established in the Prefectures of Taito and Koshun; the number being later increased to sixteen. But these efforts are confined to the more domesticated of the tribes. To disseminate education more widely among the aboriginal tribes in general and to introduce Japanese manners and customs among their children, and through them to extend civilizing influences to their parents and elders, the island authorities have since entrusted the police with the work of reaching and teaching young aborigines, wherever possible.

The aborigines have their own code of morals handed down from ancient times. They have strict rules regulating relations between the parent and child, between brothers, between husband and wife, and between the old and the young, well in keeping with the ethical principles of piety, devotion, fidelity and reverence. They are, also, ancestor worshippers, and are very loyal in observing traditional teachings. Even their custom of head-hunting has a patriotic meaning with them, in that it originates in the pious desire to defend the land bequeathed by their ancestors against the encroachment of alien people. Being thus based on such a motive, it is no easy task to persuade them to give it up. In view of this the Government's plan is to convince the tribes of the futility of resistance by the pushing forward the Aiyu lines and by sending out punitive expeditions, and then to induce them voluntarily to surrender their fire arms. Then effort is made to convert them morally and spiritually by stationing religious teachers of firm resolution and unshakable faith among them. The wives of some of these teachers have been entrusted with the work of reaching and winning over the aboriginal women.

Subjugating the Tribes

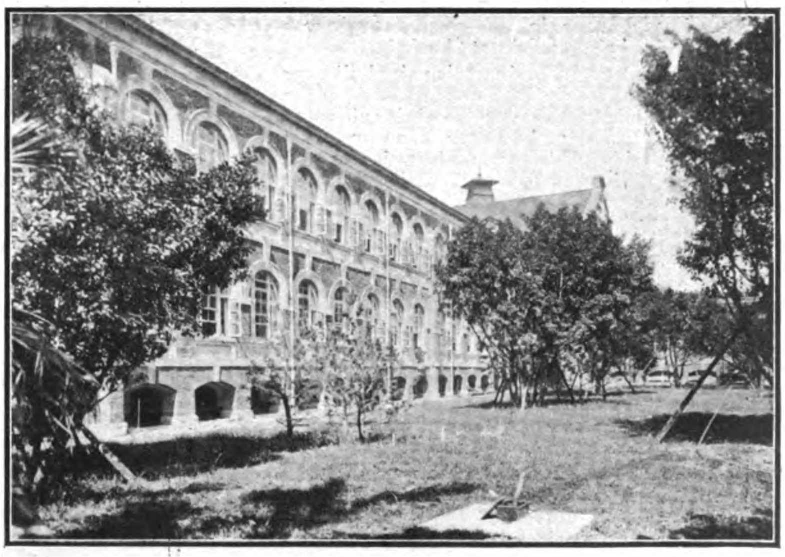
Two methods are used in subjugating the defiant tribes. One is the pushing forward the Aiyu or guards lines and the other the punitive expedition. The Aiyu is a line of outposts surrounding ferocious tribes. Along the intended line a road is cut across mountains and valleys, and the inside of the line is cleared for some distance of trees and shrubs, in order to facilitate shooting. On this road, outposts consisting of 2 to 4 aiyu-men (native guardsmen) are stationed every two or three cho. At every two or three outposts is stationed the superintending agency consisting of a Japanese policeman and several aiyus, while the whole line is placed under the control of a police sergeant and his subordinates. At strategic points machine guns are placed and wire entanglements are set up, thus making it impossible for the savages to cross the boundary and attack peaceful inhabitants. The advancing or pushing forward of the line means the gradual shifting and closing of this line on the tribal headquarters, steadily circumscribing them within narrower limits.

Punitive expeditions are formed and put in operation when the refractory aborigines offer organized resistance in defiance of peace time police force, the object being to punish and bring them into submission. These expeditions are conducted by bodies of policemen sometimes assisted by the regular troops. The guard lines have been advanced or new lines set up forty times, and ten or more punitive expeditions have been conducted.

Agricultural Productions and Settlers

The soil and climate of the Island are well fitted for agriculture. To add to this, the

On the Great Oak River



The Taihoku Hospital

Government General has promulgated many special ordinances to encourage the reclamation of wild lands, the work of irrigation and the building up of the sugar industry. The Government General has established an Agricultural Laboratory, a Sugar Laboratory, an Experimental Tea Plantation, and an Experimental Horticultural Station, with the object of disseminating an agricultural education by carrying out experiments, and also by enlisting students. More recently the Government General issued regulations for the encouragement of sericulture, which has a great future in the Island. Since these measures of agricultural administration have been in operation there has been conspicuous activity in all agricultural industries and considerable increase in production.

The total area of land for which permit to open up was issued up to the end of December, 1914 in accordance with the above regulations was 54,773 ko, of which 4,276 ko have been conferred the industrial rights. The area provided with newly cut irrigation canals stood at the end of 1914 at 158,679 ko officially recognized and 72,874 ko not officially recognized; total 231,679 ko.

The agricultural work of the Island is carried out on lands long since under cultivation as well as those newly opened up. The utilization and economy of land coming under the former category have been intensified and they have shown marked advance in their productive capacity, so that their total outputs were valued at over 100,000,000 yen at the end of 1914.

Occupied lands are about 10 per cent of the total land area of the Island and something over 54 per cent of the "administration zone." Of those cultivating these areas, 358,072 are independent farmers, 242,206 part independent and part tenant farmers, and 272,390 tenant farmers, or a total of about 1,000,000, that is, about 30 per cent of the entire population of the island. Add to this number 1,014,287, persons employed as farm hands, and it is seen that about two-thirds of the whole population belong to the farming class.

Principal Agricultural Productions

The production of rice has greatly increased of late, the area of land cultivated for the purpose reaching 492,944 ko in 1914, yielding 4,489,000 koku of rice, valued at 51,676,000 yen. Rice, thus, comes second only to sugar in the list of the Island's agricultural products and forms 40 per cent of their entire value. The Island's transactions in rice with Japan were opened in 1897. In 1898 the price of rice rose high in Japan and the exportation of the cereal from the Island made a sudden increase. Since then its shipment home has gone on steadily so that to-day the entire surplus after supplying the needs of the Island is forwarded to Japan, and in 1914 its export amounted to 680,000 koku valued at 7,900,000 yen. The rice of two crops in one year (1913) was 2,346,998 bushels. (Koku=5 bushels).

The peanut or ground nut, is raised all over the Island, especially in the sandy soil on the river-side and sea-shores, where it is cultivated as an after crop to the sugar cane or sweet potato. Besides yielding an oil, its leaves and stalks go to feed horses and cattle. Its area is 19,414 ko.

Though found more or less in every part of the Island, sesame is most largely cultivated in Kagi, where it is chiefly used for the expression of oil. It is grown on 10,953 ko.

The island in 1913 exported 17,000,000 kin (Kin = 1⅓ pounds) of tea, worth Y 6,434,680, and the plant forms one of the main-stays of its trade. The shrub grows luxuriantly in the northern provinces of the Island, the Toyen district being most noted while Daitotei is the chief market.

The tea zone of the Island is hilly and undulating with high plains. Both soil and climate are well suited for the growth of the shrub. There is not a hill side or an elevation that has not been turned into a tea plantation. The area of tea plantations in 1914 aggregated 33,383 ko yielding Y7,000,000 of manufactured leaves. The tea leaves are roughly prepared by the local farmers and then re-fired by the tea-merchants in the market town.

Sugar plantations were formerly found mainly south of Dakusuikei, where the lack of irrigation facilities made it impossible to raise rice. The native sugar industry of Formosa possesses a history dating back hundreds of years, but has always been primitive, the variety of canes being of inferior kind while the method of cultivation has been carelessness itself with no attention paid to the problems of fertilization and irrigation, and consequently the crop amounted to only 40,000 kin per ko (21,200 lbs. an acre) with five to eight per cent of sugar.

When the Government General undertook to introduce improvements in the industry in 1903, it, therefore, began the work by endeavoring to persuade the planters to reform, at the same time extending aids in furnishing fertilizers and young plants, while insisting on advanced methods of cultivation. As the result of improvements in the method of cultivation the crop per ko has increased to 50,000 kin or more with 10 per cent or more of sugar. Besides the plantation area has also greatly increased, and in 1914 the sugar crop was seven times that of 1903.

Other crops are indigo, "tree indigo," ramie, jute, pine apple fibres, China grass, tobacco and fruits, among them oranges, lichees, persimmons, plums, peaches, bananas, and pine-apples.

The number of settlers received up to the end of 1913 was 73,937 persons, of whom 18,671 were men and 55,766 women. Their health condition is good.

MYSORE SANTALWOOD DISTILLERY

The establishment of a factory in Mysore state, India, for the manufacture of sandalwood oil marks another step forward in the gradual elimination of raw materials from exportation and their replacement by the finished or at least partly manufactured products. Not that sandalwood (properly santalwood) oil has not been a manufacture of India, but the product turned out by the small and badly equipped native plants has been so crude and has suffered so many adulterations in its progress to the final markets that these were finally shut to it and the native buyer was left alone in his handling and use of it. The distillation of the wood by private persons is prohibited in Mysore state, anyway, and the few tons of the wood that passed through the rude native stills, was the product of the border areas of the forests.

Manufacture of essential oils is a highly technical process which has been a gradual development in Germany and France, which countries were the ultimate buyers of the santalwood, and as knowledge of these methods had not penetrated to Mysore, as a preliminary to any proposals to set up sandalwood distillation in Mysore, it was decided to have the whole question thoroughly investigated and this work was entrusted to Professor Sudborough and Dr. Watson of the Indian Institute of Science. During the whole of last year and up to the present time the matter has been under experimental investigation and the results obtained are of a sufficiently satisfactory character to warrant the establishment of an experimental factory where the oil will be manufactured on a commercial scale.

This new factory which will cost about one lakh (R. 100,000=$32,400 gold) of rupees is under construction. In the course of the experimental work, a considerable quantity of sandalwood oil has been produced, the bulk of which has been sold locally at very favourable prices and the oil which has been sent to England has been declared equal to the best that can be obtained in Europe and has fetched equal prices. It is hoped that by the end of this month (March) the new factory will be at work, producing about 2,000 pounds of sandalwood oil per month. The oil produced with the experimental plant is now selling freely at Rs. 18 per pound whilst the price on the London market is as high as 30 shillings a pound. To pass the test to which the oil is subjected in Europe, complete chemical control is necessary and every consignment of oil sent out from the factory will be subjected to an examination, and a certificate as to its quality issued. In this way it is hoped to be able to overcome the prejudice against the sandalwood oil manufactured in India and to retain in the Mysore State the profits on the manufacture of the oil which have hitherto largely gone to Germany.

Although sandalwood oil has been manufactured in India from time immemorial, this venture is practically a new industry as the methods intended to be pursued are from the beginning entirely different from current Indian practices. The annual auction sales of sandalwood will still continue and the new factory will purchase sandalwood from the Forest Department at the same prices as paid by outsiders. If the industry proves profitable, it is under contemplation to establish a distillation plant of sufficient size to deal with the whole annual output of the sandalwood of the south of India. The advantages possessed by a local distillery worked on modern lines are very considerable, and it is expected that not only will the State be able to maintain the revenue hitherto enjoyed from the sandalwood monopoly but largely to increase it. The disposal of sandalwood in Mysore, we are reminded, is a State monopoly which in recent years has produced a large net revenue. In 1913-14 just previous to the outbreak of war this revenue amounted to 19.87 lakhs of rupees produced by the sale of 1,862 tons of wood. The wood is mainly disposed of by auction sales held in the months of November and December, but after the outbreak of war there was an almost complete cessation of the demand from European buyers. Latterly the business has revived and at the auction sales at the end of last year good prices were obtained for a fairly large quantity of wood.

UNLOADING OIL TANK CARS

At oil tank stations where two or more different kinds of oils are stored, pumping plants are being used for transferring oil from the tank cars to the storage tanks.

The outfit which is made by The Goulds Manufacturing Company, Seneca Falls, N. Y., and is known as their Fig. 1668, consists of 2 Goulds 6"x6" "Pyramid" Single Cylinder, Single Acting Piston Pumps mounted on one base with pulley between. The shafts of both pumps are fitted with jaw clutches so that the pumps may be operated separately or both at the same time.

As it is not convenient to always clean the pumps this is an ideal outfit for such service as the same pump can always be used for handling the same oil.

AN EXAMINATION OF CHINESE BRONZES

By John C. Ferguson, in the Annual Report of the Smithsonian Institution.

It is important that, in all branches of Chinese art, the rest of the world should understand the Chinese point of view. Without a careful survey of the historical development of the country it is impossible to enter

Tripod bronze vessel of Chow Dynasty, known as the K'o Ting; supported on wooden stand.

into the intricacies of their art interpretation, but general principles can be learned by persons unfamiliar with the language of China if these are translated into our own language. There is a greater lack of accurate information concerning bronzes than in any other field of Chinese art, and this is not for the reason that Chinese literature is not rich in books on this subject. The purpose of this article is to bring to the attention of the western world a succinct authoritative statement of the principles recognized by Chinese connoisseurs in the examination of Chinese bronzes. The original text is written in short nervous sentences which I have frequently joined together to make the meaning clearer.

The following account was written in 1767 by Liang T'ung-shu, the son of Liang Shih-

Covered tripod bronze vessel, of Shang Dynasty, decorated with pinniped pattern—k'uei wên; four suspending rings on cover; color of bronze is mercurial and is iridescent.

cheng, a noted official of the reign of Chien Lung, who was an eminent authority in archeological research, especially in connection with the places around West Lake, Hangchow. The son was employed in the palace as an expert.

This account was in manuscript and was published only in 1913 by the Shen Cho Kuo She, Shanghai, in its encyclopaedia of fine arts, Mei Shu Ts'ing She. So little has been written on this subject that the following translation may be of some value to the increasing number of students of this interesting branch. The translation of the text is as follows:

What are now called antiques are the gold and silver inlaid bronzes of the Shang dynasty* and the "ting," "tsun" and "i" of King Wen, which were also of ancient workmanship, and therefore correctly classified as belonging to the Shang and Chow periods. The men of the Han dynasty were fond of the craftsman's art, as is shown by the jade pieces of that period which are of rare workmanship. It was near to the period of antiquity, and the models of three dynasties could be readily utilized. The articles produced were named after the period of their pattern, and are not necessarily to be considered as genuine products of the Shang and Chow dynasties. There are also articles which have been fraudulently said to have come from ancient tombs, such as the instance of the Hunan amulets. Such facts are well known to connoisseurs. Articles used in the Han period, like the Po-shan censers, having no

Bronze wine vessel, of Shang Dynasty, decorated above and below with recurved pattern—hui wên. In center are nipples surrounded by diapers. Handles richly carved and surmounted by ogre's head.

distinct coloring of blue or green are not classed as ancient, but as belonging to the Han dynasty, but it must be remembered that the output of mortuary articles during the three dynasties was very great and that they were not much used during the Han. Therefore few articles were then buried, and even in the case of those which were buried the blue and green color must be very much like that of the article of the three dynasties, for the difference in age is not great. Even jades which are now found with bloodlike marks come from the Han period, and how could it be possible that bronzes could be buried without undergoing a change of color?

Color of Ancient Bronzes.

Ancient vessels which have been much exposed to the air become blue, while those much exposed to water become green. When exposed to both air and water, the colors blue and green are both produced. The tombs of the ancient kings and emperors were solidly built, so that water could not penetrate them. Those vessels that were placed on stone pedestals were in the air as long as the pedestal remained intact. Thus, being long

Bronze wine vessel, of Chow Dynasty, decorated with the thunder scroll—lui wên, and known as the Fu Ting I; has a cast inscription.

subject to the influence of the surrounding air, the color became very pure, and, furthermore, there being no contact with the earth, the color is a pure (kingfisher) blue. This is the best variety. Inferior to this are vessels found in the burial mounds of the ministers of state where they were subject to the influence of soil and water, and thus they were colored both blue and green. The pure green ones were produced where they lay in water without being covered with the soil.

Burial in Earth *Vs.* Exposure to Air.

Bronze vessels buried in the earth for a thousand years become pure blue, like that of the kingfisher. The color before noon is pale, but after noon takes on the appearance of clouds, and the kingfisher blue seems as if it would liquefy into drops. There are also places where the earth has eaten into the metal, either making a hole or forming scales and giving the appearance of snail tracks. An appearance of being the mark of a stroke of a hammer is unreal.

Bronze vessels subject to the influence of water for a thousand years become pure

Bronze libation cup, of Chow Dynasty, with one handle and two suspending hooks, known as Fu I Tsioh, with an inscription under the handle.

* Early Chinese dynasties; Hsia, B.C. 2205-1766, Shang, 1766-1122; Chow, 1122-255 (the preceding three dynasties known as the San Tai) Ts'in, 255-206; Han, B.C. 206 to A.D. 221.

Bronze vase, of Chow Dynasty, known as a Ku; is supported on wooden stand.

Bronze bell, known as Chung, of Chow Dynasty; supported on wooden stand with over-reaching frame; double dragon decoration at top. (Ferguson collection.)

Bronze range with utensils, of Han Dynasty; supported on wooden frame. (Ferguson collection.)

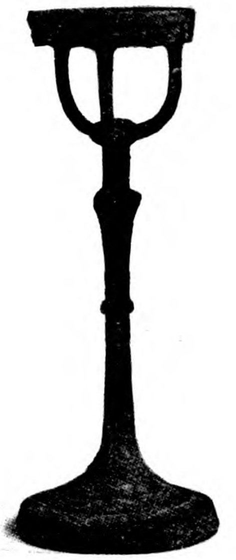
green, as the rind of a melon (kua-p'i), and glossy like jade. If subjected to such influences for a shorter time, although they may be bluish green, yet they are not bright. Corroded places are similar to those mentioned in the preceding paragraph.

Bronze tripod wine steamer, known as a Ting, of Han Dynasty; top of legs decorated with an animal head, cover missing, hollow tubes above vessel provide exit for evaporation of wine which dripped from overhanging cover. (Collection of Mr. Pao Hsi, Peking.)

It is the present custom to call "ancient" light-weighted specimens of either of the above classes. This is done in ignorance of the fact that large vessels are necessarily thick, and that only a third of such vessels are corroded even during a long period of time. The weight of these vessels in which the bronze has only been partially corroded is only reduced by a third or a half. In the case of light, thin vessels, where the influences of earth or water have easily penetrated the entire body of the bronze, the color of the bronze cannot be seen when fractures have been made by the strokes of hoes. It is all blue or green, or there is an occasional streak of red, like red lead. However, the resonance of the metal is not lost.

Such specimens as have not been covered with earth or water and have been preserved to the present time have a dark brown color with red scales. These scales stand out like good Chen-chow sand. If immersed in hot water for a good length of time, the patina of these scales becomes more brilliant. Such specimens are of the highest value. Spurious specimens can be detected, as their color is only superficial.

Bronze incense burner, known as Po Shan Lu, of Han Dynasty.



Bronze candlestick, known as Têng, of the Han Dynasty. (Ferguson collection.)

None of three classes mentioned above has any rank odor, with the exception of those recently exhumed from old soil, which retain a strong smell of earth for a short period. Spurious specimens, when rubbed briskly with the palm of the hand, have a distinct disagreeable smell.

Bronze musical rattle, known as Wu Lao, of Chow Dynasty, used for ceremonial dancing; has a loose tongue which rattles when instrument is shaken. (Ferguson collection.)

Color and Pattern.

Specimens of a dark reddish or black lacquer color that have been in the soil or in water for a short time may become superficially beautiful, but the beauty is not deep and they are never glossy. Such specimens are of secondary value. I have noticed that Han dynasty seals and coins which are fifteen hundred or sixteen hundred years old are rarely glossy even when they are quite green; neither do they have red scales raised upon

them. Ancient specimens of bronze in which the patina has penetrated deeply are glossy like jade and have red scales, thus showing that they belong to the three dynasties (Hsia, Shang, Chow). To determine their age, attention must be paid to the gloss of specimens and then to their pattern.

Determination of Inscriptions.

Inscriptions are of two different kinds, k'uan and chi. What is called chuan (seal characters or ornamental writing) is for the commemoration of merit. This writing is on bells and tripods. K'uan is in intaglio, and such writing during the three dynasties was considered stylish. The characters were sunk into the metal. From the time of the Han dynasty, the "chi" in relief was used, with occasional use, also, of sunken characters incised by the use of tools in the same manner as if on stone tablets. Sunken chi were difficult to cast, but relief chi were easy, and thus it can be easily detected that they did not long belong to the period of the three dynasties. The "k'uan" of ancient vessels were on the inside and sunken. The chi were on the outside and were in relief. Vessels of the Hsia and Chow dynasties had either chi or k'uan, while those of the Shang dynasty usually had chi, but no k'uan. The ancients showed great care in the work. Artisans were classed by them as among the four estates of the people, and were not looked down upon as in later degenerate days.

In casting vessels the ancients used wax for their models or patterns, and the lines were thin like hairs, even, regular, and distinct. The characters of chi were rounding like the surface of inverted tiles. They were not deep or bold, and both large and small characters had the same depth. They were clear and distinct without any blurs. Such castings of carefully chosen bronze were excellent. They had three characteristics: First, they had no marks of sand granules; second, the workmanship was wonderful, and third, there was no sparing of labor. They were not made overnight. If ancient vessels are now found with the k'uan and chi blurred and distorted and cast in an irregular mold, these are the work of amateurs or imitators. The quality of the metal, its color and odor, are not the same as of good vessels.

The ancients used sacrificial vessels, such as bells and tripods, for the praise of meritorious and worthy deeds, and hence made inscriptions on them. Inscriptions were put on platters and bowls when they were used in preparation for sacrifices, but when used for domestic purposes inscriptions were often lacking, and such fact can not be used as proof of their being counterfeits. In such case the style of inscription, the quality, color, and odor of the metal must decide.

Vessels of the Three Dynasties.

The Hsia dynasty was noted for reliability, the Shang for quality, and the Chow for display; and the bronze vessels of these dynasties have the same respective differences. Vessels of the Shang dynasty are plain and without adornment, those of the Chow dynasty are finely engraved, while those of the Hsia are different from either of these. I have often seen vessels of the Hsia dynasty on which gold was inlaid thin as hairs. In course of time the gold fell out, leaving sunken places, so that the ornamentation became depressions. Such inlaying is now often wrongly attributed to the Shang dynasty by those whose knowledge is limited. They should remember the poetical quotation:

> "Engraved and chiseled are the ornaments.
> "Of metal and of jade is their substance."
> Shi King III, 1,4,5.

and thus know that these were of the three dynasties period.

New bronze vessels are those cast during the T'ang, Sung, and Yuan dynasties. From the time of the Emperor Yuan Pao (742-756 A.D.) of the T'ang dynasty, down through the Sung dynasties such vessels were made at Kuyung. Many were also made at T'ai-chow, but these were chiefly of the small lui-wen pattern. During the Yuan dynasty, Chiang Lang-tzu, of Hangchow, and Lu Wang-chi, of Ping Chiang, were noted artisans, but the figures on their work were without delicacy. However, Chiang was a better workman than Lu.

The method of determining ancient bronze vessels adopted by the Household Department of the Ching Dynasty was that vessels of the Shang dynasty were unadorned, those of the Chow dynasty were richly engraved with fine lines, while those of the Hsia dynasty were inlaid with gold which had the appearance of fine hairs. These fundamental facts can not be overlooked.

The inscriptions in "chung," "ting," "tsun," and "i" during the Hsia, Shang and early part of the Chow dynasty had only one or two characters, and at the most 20 or 30. Long inscriptions of two or three hundred characters belong to the later part of the Chow dynasty or to the early Ts'in. There were also genuine vessels of the three dynasties which bore no inscription, for the reason that they were the property of families which had no special merit to commemorate. Such vessels cannot be discarded as spurious. The characters used in inscriptions of the Hsia dynasty were niao chi (bird tracks), those of Shang were ch'ung-yu (insects and fish) while those of Chow were ch'ung-yu and the large "seal" characters. Ts'in dynasty used the large and small seal characters, but from the Han dynasty onward small "seal" characters were used. The three dynasties used sunken inscriptions, while the Ts'in and Han used inscriptions in relief, and occasionally sunken ones, which were incised with tools in the same manner as stone tablets for the reason that this was easier than casting inscriptions in intaglio.

Ts'ao Chung-ming says that the bronze vessels buried in the earth for a thousand years became pure blue like the kingfisher, while those subject to the influence of water for a thousand years became clear green as the rind of a melon. My opinion is that where the soil is warm and moist vessels become blue and where the water is brackish they become green. It is also said that before a thousand years vessels may become blue or green, but not glossy; but I fear that this is not true. How can it be that vessels of a thousand years of age which are glossy, but on which the blue and green colors are not pure, are not properly classed as belonging to the three dynasties? Kao Shen-fu considered that where the metal was comparatively pure and without much alloy the vessels became blue, and that when the alloy was in large proportion they became green. But the ancients were not niggardly in their expenditures, and how can it be thought that they preferred alloyed metals? Such statements are those of a blind man at a theater, and should be discounted. There are those also who maintain that vessels of a dark-brown color have not been preserved in open places, but have come from graves on hillsides or stone vaults where there is no dampness to cause the decaying corpses to influence the color of the metal, and this opinion is probably correct.

The sound given out by ancient bronzes is clear, while that of modern pieces is confused and noisy. Ancient bronzes have no rank odor, except those which have been recently taken from the soil and still retain its smell. Other kinds are spurious. If rubbed briskly with the palm of the hand, a rank odor is given off.

The ancients were not sparing of labor like the artisans of later degenerate times. For this reason the k'uan and chi of ancient bronzes were fine like hairs and were even, regular, and distinct without a trace of being blurred. The characters of the chi were rounding like the surface of inverted tiles and uniform in depth, both when written large or small. The specimens preserved by me all have these characteristics, but I have seen those preserved by others which are different. If the inscriptions are somewhat blurred, such specimens are spurious, and the quality and color of the metal would also be incorrect.

The best color of ancient bronzes, according to some persons, is dark brown, and in my opinion the worst is a leaden color. Those which have red scales are better than the lead-colored ones, but the dark-brown color is still better. The dark-brown color is not so good as the green, nor the green as the blue, nor the blue as those which are iridescent (mercurial), or the iridescent as the black lacquered ones, which, however, have the fault of being easy to counterfeit. Such counterfeits can be readily detected.

BOOK REVIEW

Chinese Encyclopedic Dictionary

Three years ago the Commercial Press put out its New Dictionary, which has become an indispensable reference book. This firm recently published another greater and more complete work known as the Encyclopedic Dictionary to be for the Chinese language what the Century and other similar dictionaries are to English. The work meets a long-felt need. The Chinese language is many centuries old, and its literature has been especially enriched during recent years with the new learning. It still is in process of evolution and many new expressions relating to the sciences, law, medicine, history, etc., have found their Chinese equivalents. New words and phrases are being coined daily to meet new conditions of modern civilization. Therefore, it was necessary to have a dictionary of the new language of modern China, besides that of Confucius.

The work under review is the product of a large staff of scholars, under the editorship of Mr. Lu Erh-kwei, after years of labour. It deals with language and literature, philosophy and religion, astronomy and geology, physics and chemistry, physiology and hygiene, disease and medicine, economics and political science. It contains phrases, terms, idioms and other expressions not found in an ordinary dictionary. Experts and specialists were consulted about the terms used. The definitions are clear and to the point, and the workmanship is excellent. The work is most valuable to students of modern and classical learning, be they foreign or Chinese. It should be in the study of every student of the Chinese language, and no library is complete without it.

Bound in five forms, ranging from Mexican \$20 to \$5 per set. All bound in two volumes, except the first form, which is in twelve Chinese volumes. The middle form contains 3,094 pages. Publishers, the Commercial Press, Limited, Shanghai.

THE WESTERN ELECTRIC COMPANY

One of the largest manufactories of electrical machinery in the United States and which has a number of successful installations in China to its credit, the Western Electric Company of Chicago, is preparing for the large extension of its business that is already in sight. To enter more strongly into the China trade the company has established a branch office in Shanghai and has taken new and commodious quarters in the Union Building, No. 4 The Bund, Shanghai. Here the company will maintain a show room in which samples of products will be displayed in such a way that the special advantages of Western Electric apparatus can be readily looked into by those interested in any line of electrical machinery that the company manufactures. The branch in Shanghai will be under the direct supervision of Mr. F. F. Fairman and it will hold the sole agency in China while Messrs. Arnold Karberg who formerly held this agency will have no further connection with the Western Electric Company.

SHANGHAI MUNICIPAL ELECTRIC PLANT

FROM ANNUAL REPORT OF ELECTRICAL ENGINEER FOR 1915.

The principal outstanding and satisfactory feature of the past year is the vindication of the Department's policy, financial stability and technical soundness, as agreed upon by Mr. A. H. Preece, and the satisfactory financial position reported upon by the Treasurer. It may be hoped the Department will now be allowed to continue its activities along the path of progress, cleared of the obstacle doubt and paved with confidence for the future.

The other feature, unsatisfactory indeed, is the serious breakdown of the German built turbo-alternators at Riverside. It is not generally known that at one critical period 66 per cent. of the turbine plant was unavailable for service owing to serious defects the development of which had made themselves manifest. But for the incident of the Chinese New Year holidays, when the demand for electricity falls owing to the mills closing, the full supply to the public could not have been maintained. Into the technical causes of these breakdowns it is unnecessary to enter in detail, but enough has been discovered to prove that unsuitable material used in the manufacture was responsible for the trouble. Evidence collected in the United States and England goes to show that the use of the particular metals employed in the construction of the turbine blading was likely to end in disaster. Chemical analysis of the metal conclusively proves that a wrong selection was made in its choice. Two of the machines which developed blade trouble had been in commission only one year and nine months. Other mechanical defects have also since shown up. A serious electrical breakdown also occurred necessitating re-winding part of one of the alternators. This occurred almost simultaneously with the blade troubles and so threw an additional strain upon the Department in maintaining an uninterrupted supply to the public during that period. The best of machines may give some trouble at times, were it otherwise the calling of the engineer would be less obvious, but trouble such as was experienced with the German built machines at Riverside is directly traceable to faulty construction and selection of metals. It may not unnaturally be asked why were these machines selected. The reply is that tenders were, in accordance with the Council's custom, publicly invited. The selected ones were, theoretically, taking price, steam consumption and guaranteed efficiency into full consideration, the best offered for the purpose required, and it would, at the time, have been difficult to have passed them over.

The figures below show the yearly cost in repairs and maintenance of British built machines at Fearon Road Station, in comparison with the German machines at Riverside. The number of years the various machines have been in commission is also given.

Make	Capacity in Kilowatts.	Years in Commission.	Yearly cost in Repairs and Maintenance.
—	—	—	—
			Taels
Parsons	1,000	9	380
Willans and Robinson	1,000	8	396
Belliss and Morcom	600	8	141
do.	600	8	183
Howdens	500	5	343
do.	500	5	423
Allgemeine Electricitats Gesellschaft	2,000	1 year 9 months	2,550
do. do.	2,000	1 year 9 months	2,140

The above figures do not take into account the further losses in the shape of lost revenue resulting in the stoppage of the A.E.G. machines during the time they were under repair. These machines would normally be generating more electricity than the others owing to their greater capacity, thus the loss of revenue was proportionately greater.

Since these turbines were installed trouble with machines of similar make have come to light in connexion with machines in Australia and England. Not only have the German turbines proved defective in Shanghai, but several transformers have also shown marked inferiority to either British or American ones in service. This is not a mere generalisation, the truth of the statement is beyond dispute.

It is hoped these remarks, for which from the purely commercial aspect it would have been preferred there had been no cause, may be carefully studied by prospective buyers and users of electrical plant throughout China. It is not perhaps unfair to claim that on account of the relative magnitude of the Shanghai electricity undertaking and its large foreign staff of engineers, machinery may receive better treatment and more careful supervision than can be given in smaller undertakings either in the outports or interior cities of China. This then leads to the conclusion that nothing but the most reliable machinery should ever be considered for such undertakings.

Notwithstanding the laying up of the Riverside turbines for a considerable time for repairs, by the exercise of care on the part of the acting chief mechanical assistant engineer in charge of the two power stations, and his assistant engineers, the year's working shows a further reduction in the costs of production from last year's figure of tael cents 2.28 to 1.78 or 22%. The greatest reduction is in coal which is the result partly of a cheaper price paid, partly to supervision and again to the lower steam consumption of one of the new 5,000 Kilowatt turbines. The sales of electricity for all purposes increased by 52 per cent.

Analysis of Works Costs

UNITS SOLD AND ACCOUNTED FOR

Account.	1912. 12,130,537 Tls.	Per Unit Cand.,	1913. 21,888,230 Tls.	Per Unit Cand.	1914. 32,885,822 Tls.	Per Unit Cand.	1915 49,827,555 Tls.	Per Unit Cand.	Decrease over previous year Cand.
Coal - - -	137,367	1.13	231,985	1.06	336,186	1.02	420,408	.85	—.17
Oil, Waste, Water and Stores - -	15,298	.13	22,283	.10	26.128	.08	37,159	.07	—.01
Wages - -	34,093	.28	52,964	.24	59,972	.18	69,487	.14	—.04
Repairs and Maintenance	97,095	.80	151,902	.69	168,538	.51	190,294	.38	—.13
Rent, Rates and Taxes -	11,262	.09	14,277	.07	20,780	.07	24,807	.05	—.02
Management Expenses -	86,198	.71	107,604	.49	137,999	.42	144,494	.29	—.13
Total	381,313	3.14	581,015	2.65	749,603	2.28	886,649	1.78	—.50

Had both 5,000 K.W. turbines been in order (one, it will be recalled, stripped the blading of one wheel and is still running with one wheel short, and taking about 20 lbs. of steam per kilowatt hour as against a guaranteed consumption of 13 lbs.) a still further reduction in the generating costs would have been remarked. These yearly reductions in Works Costs are indicative of what may be looked for when the new extensions now in hand are completed; they bring nearer to realisation the hoped for reduction in the prices charged for lighting, heating and cooking.

Plant Capacity

The generating plant capacity of the two stations may be taken at 19,600 kilowatts. The storage battery, used in connexion with the traction supply, was scrapped as it was no longer in a serviceable condition. The sale of this battery, consisting principally of lead plates and sheets was most satisfactory, realising a net sum of Taels 14,456. Its book value was Tls. 10,461.

Maximum Load

The maximum load on the two stations was 14,400 kilowatts, and the load delivered to the feeders for light, heat, power and traction 13,909 kilowatts. This fell short of the 15,500 kilowatts estimated at the beginning of the year. It is explained largely by the fact that shortly before the close of the year some of the large mills shut down temporarily, one mill alone accounting for 500 kilowatts, while quite a number of small power users had also stopped operations due to trade depression. It is reckoned that 800 kilowatts can be accounted for from this cause. The traction load remained practically the same as last year.

Load Factor

A remarkable improvement of the Load Factor can be recorded. From the generally accepted good figure of 33.6 per cent of 1914 it has now reached 40.8 per cent. It is but fair to add, however, that the temporary reduction of the maximum load by some 800 K.W. towards the close of the year helped the load factor improvement, but only to a small extent. Had no shrinkage of load occurred more units would have been sold and it may quite safely be said that a 39 per cent. load factor would still have been reached.

Perhaps a better appreciation of the importance of a high load factor may be gathered from the following figures,* which show the units sold per kilowatt by the five largest British municipal electricity supply undertakings and also at Shanghai. They clearly indicate the number of units sold per year for each kilowatt of maximum demand.

Distribution

The actual quantity of underground cable and overhead mains erected was less than during the previous year, but this in no wise reflects lesser activities in the mains department nor a falling off in electricity demand. During the past few years a great extension

* See Table on next Page.

Comparison of Load Factors of Cities

Year Ending	Undertaking	Units Sold per annum	Maximum Demand in K. W.	Load Factor.	Units sold per kilowatt of Maximum Demand.
1914	Manchester	117,982,802	49,897	26.98%	2,363
1915	Glasgow	88,834,270	39,750	25.51%	2,240
1914	Birmingham	73,767,178	33,177	25.38%	2,225
1915	Shanghai	49,600,824	13,909	40.8%	3,560
1914	Liverpool	48,122,198	22,186	24.76%	2,190
1915	Sheffield	44,873,342	23,618	21.69%	1,900

and enlargement of the distributing system has been carried out, so that in many areas extensions or enlargements should not be necessary for some time. Nevertheless, there are always new areas where distributing mains are required, and from time to time extra high pressure underground feeder cables have to be laid for supplying them, also for meeting the industrial loads which now form such a large proportion of the output.

During the year 119.20 miles of cable have been erected for enlarging and extendi ng the overhead mains and 0.65 miles of E.H.T., 2.13 miles of L.T. and 0.50 miles of pilot cable laid.

New poles numbering 1,414 were erected and 822 renewed.

Transformer Sub-stations

43 additional transformers were put into service totalling 11,606 K. W. Of these 4 were of the oil-cooled pole type=60 K.W. and 39 indoor type=11,546 K.W. while 39 transformers were disconnected totalling 6,212 K.W. of which 3 were oil-cooled pole type=60 K.W. and 36 indoor type=6,152 K.W. The nett increase in transformer capacity is therefore 5,394 K.W. Total capacity of all transformers in service=18,284 K.W.

The new sub-station at Tonquin Road was completed, partly equipped with switchgear and transformer, and put into commission. This sub-station has been designed to supply the surrounding district, which is becoming very largely industrial in character. It is now supplied through four underground 6,300 volt cables, but in the near future additional aid will be effected by means of three 22,000 volt underground trunk feeders. The pressure will then be stepped down from these cables to 6,300 volts for distribution to local feeders, and also to 350 volts for general supply in the immediate vicinity. This sub-station has been designed for dealing with an ultimate capacity of 15,000 kilowatts.

Arrangements were concluded with the French Tramway and Lighting Company for a bulk supply up to 400 K.W. This supply was connected during the year, but up to the present the maximum demand called for by the Company has not exceeded, on the average, more than 228 K.W., but this is likely to be further increased during the current year.

The sub-station work in progress and completed during the year was as follows: Thirteen 3-phase sub-stations erected and commissioned, 3 single phase sub-stations erected and commissioned, 3 3-phase sub-stations dismantled and disconnected, 10 single phase sub-stations dismantled and disconnected, 7 3-phase sub-stations in course of erection. The ultimate capacity of these seven sub-stations at present in course of erection is 10,000 kilowatts.

Public Lighting

Street lamps at the end of the year were:—44 arc and 1,422 metal lamps, made up as follows: 32 enclosed arcs, 12 flame arcs, 801 sixty candle power, metal filament nitrogen lamps, 184 of 100 candle power, 167 of 200 and 270 of 400 candle power.

Practically all the incandescent street lamps are now of the so-called half-watt or nitrogen type. The current consumption of these lamps is approximately .75 watts per candle as compared with 1.2 watts per candle consumed by the ordinary metal lamp formerly in use. The quality of the light emitted from these nitrogen lamps is whiter than from the metal lamps.

During the typhoon last summer serious interruption to the street lighting occurred in those districts where there are many trees alongside the roads. In almost all cases where the lighting was interrupted the cause was traceable to branches of trees having fallen upon or amongst the wires forming the street lighting circuits. In the Central and Northern districts, where there are practically no trees which can come in contact with the wires, very little trouble or inconvenience was experienced as a result of the typhoon.

The partial failure of the street lighting during the typhoon period called forth much criticism, some of which was not altogether fair. In the first place the typhoon was of exceptional severity, and did damage to various other property, etc., which had successfully withstood previous typhoons. It is also to be borne in mind that the prices charged for street lighting are low, and for the price paid, and considering the really rare occasions when failures occur, it has not by any means been proved that the system deserves the strictures passed upon it. The importance of reliable street lighting is indisputable; if a more perfect system is demanded it can be provided by electricity better than by any other known agent. By serving those street lamps, in roads where experience has shown trouble may be caused by trees, by underground cables, a more reliable system would be obtained. It would mean a somewhat increased cost per lamp; the question is whether the existing arrangement does not give—on the whole—a sufficiently good service for the outlying areas, which are the principal ones which have been affected?

4,000 meters were issued for measuring the consumption of electrical energy on consumers premises. This figure represents the nett increase in meters issued during the year after allowing for meters returned for cleaning, repair and from premises disconnected. There were 16,992 meters in use at the end of the year, and 1,092 current limiters. The nett increase in service connexions was 3,149. The total connexions to the mains is 18,104.

Increase in Equivalent 30-watt Lamps

The recorded number of additional 30-watt (equivalent) lamps connected during the year is 92,331 which brings the total connected up to 621,078. These include fans, radiators and cookers, but neither street lamps nor motors, which are usually included in the 30-watt equivalents of most supply undertakings.

Motors

The motors connected and disconnected during the period under review were as under:—

		Aggregating	
Connected	299	4,972	Horse Power
Disconnected	162	2,607	,,
Nett Increase	137	2,365	,,

The total horse power on the mains is now 14,547.

The nett increase of small motor consumers is, under existing conditions, satisfactory, but it is to be noted that many of the smaller businesses failed, or shut down temporarily during the year. With a revival of trade a return to normal conditions may be looked for. The large proportion of disconnections is accounted for by the arrangements made to effect the temporary drive of the Yangtszepoo Cotton Mill during the course of the year. The motors in question totalled some 650 H.P. and were disconnected during August. The work of substituting 3-phase motors for the single-phase type in those districts where change of system of supply has been effected has also been responsible for a large number of apparent disconnections. The prospects for the present year cannot be gauged with any degree of accuracy, but indications justify a belief that there will be a large increase in small motors. With regard to larger power installations, such as the electrification of mills, negotiations have been concluded with the following:—

Dah Yue Oil Mill, 350 horse power; Lih Teh Oil Mill, 230; Poh Yih Cotton Mill 750; Naigai Wata Kaisha No. 3 Mill, 1,500; Foo Foong Flour Mill, 600; Hung Foong Flour Mill, 280; Hung Yue Cotton Mill, 650; Hsen Shing Cotton Mill, 650; Foh Shing (No. 3) Flour Mill, 400; San Sing Cotton Mill, 800; a prospective Total of 6,210 horse power.

The annual totals over the past 5 years were:—

1911, 1,775 horse power; 1912, 3,029 h.p.; 1913, 5,263 h.p.; 1914, 12,181 h.p.; 1915, 14,547 h.p.

Heating and Cooking

Electric heating has now become thoroughly established. The number of additional radiators connected during the year—practically all of which were hired out by the Department—increased by 345. This brings the total number of radiators to 1,216, representing a heating load—if all were in use at the same time—of 2,432 kilowatts.

This form of heating has become popular amongst Foreigners and Chinese alike. The absence of dirt, smell and fumes, and also the portability of the electric radiator are all in its favour; moreover, no flues or chimneys are required, there being no products of combustion to be carried away. Then again, the cheap heating rate of 2.5 candareens per unit still further attracts consumers. Electric cooking has not had an opportunity of expanding because the cooking ranges ordered to meet the demand could not be procured. These ranges, on order for over a year, were not delivered in Shanghai till January this year.

Electricity for heating and cooking is gaining so increasingly in favour, not only in Shanghai but in other countries, that it is no extravagant claim to make that it will supersede other forms wherever the price charged for current is sufficiently low. In discussing the commercial possibilities of electric cooking and heating with Mr. Lackie, the Engineer-in-Chief of the Glasgow Municipal Electricity Department, the writer was given conclusive evidence that in the large area served by the department the progress already made was very considerable and satisfactory. Particulars were given of new building estates whereon electricity is solely employed in domestic use for lighting and cooking.

In the earlier stages of development much disappointment was caused by the unreliability of the heating elements, but these initial difficulties, common to many innovations, have been steadily overcome, and at the present time the appliances, obtainable from the manufacturers who have specialised in this class of work, are very great improvements over the early products.

That such firms as the Carron Co., and the Falkirk Iron Works, firms which have been engaged upon the manufacture of domestic and other cooking ranges for over a century, have laid out sections of their works for the manufacture of electric heating and cooking appliances, it will be the more readily appreciated that the new industry has become a firmly established one.

These remarks are offered in the hope of dispelling the doubts which may still linger in the minds of some that electricity for heating and cooking is merely a fad and a dream of the idealist.

Electrical Units Sold

The total sales of electricity amounted to 49,787,397 which is an increase of 52% over the 1914 sales. The sales for various purposes are here shown together with the increased and decreased percentages over the period 1914.

Private lighting consumption shows a steady increase, whilst public lighting consumption

has remained steady; this although over one hundred additional street lamps were connected, by the extended general use of the new half-watt nitrogen metal lamp. The large percentage of heating units furnishes ample proof that electric heating has come to stay. The power sales gain of 101% is noteworthy. It will not be many years before the power units exceed 100,000,000 per annum. Traction units show a small falling off, due to the more effective measures taken by the Tramway Co. to reduce waste of energy on the cars.

	1914.	1915.	percent.
Private Lighting	12,325,247	14,073,166	+ 14.2
Public Lighting	1,055,272	1,005,259	− 4.7
Heating and Cooking	395,675	679,704	− 71.5
Power	15,230,639	30,633,455	+ 101
Traction	3,626,838	3,395,813	+ 6.4
Total	32,633,671	49,787,397	+ 52.6

5,337,824 units were used at the Power Station and otherwise accounted for. This quantity is nearly as great as the total units sold and accounted for in 1909. Of the total number of 62,291,443 units generated Riverside provided 54,845,415. The units used at both power stations directly in the generation of electricity were 5,150,922 or 8.27% of the total. The percentage in 1914 was 9.92%.

Staff

The European staff at the end of the year totalled 76, of whom 18 per cent. are serving with the Colors. In fairness to those remaining in Shanghai it should be known that the majority of eligible men were anxious to follow the example of their confreres, but had they insisted in following their natural inclinations it would have been difficult to have maintained the public service. The Chinese staff at the end of the year was 885.

Financial Returns

The estimated nett profit on the year's working was Tls. 252,051 and that actually made is Tls. 258,909.42. Contributory causes to this excess profit are, the realisation of a better price per unit of electricity sold than estimated, a certain reduction of the salaries owing to engineers, clerks and others being absent on war service, premia on issue of debentures, interest charges less than expected, and depreciation allowance also less. In this latter connexion it should be explained that no reduction in the fixed rate of depreciation has been made, but the amount reserved for special depreciation of Fearon Road Station was corrected to its proper figure, too much having been reserved during the past three years. On the other side, however, the sum of Tls. 9.483 was written off on re-valuation of stores and a further Tls. 7,000 reserved for the same purpose.

The estimated sales of energy and the actual sales are set out below :—

	Units. Estimated.	Units. Actual.
Private Lighting	16,980,000	14,073,166
Heating	554,000	679,704
Power	33,612,600	30,633,455
Public Lighting	1,000,000	1,005,259
Traction	4,000,000	3,395,813

On sales of energy the actual units are 6,358,603 short of the estimate but the actual revenue is less only by Tls. 61,067. As, however, the units sold are less than anticipated so the costs of generation, as represented by the saving in coal used for the smaller output, are also necessarily lower, which has helped improve the nett profit.

Riverside Extensions

A better description of the Riverside extensions can be made after the extension scheme is completed but a few general remarks at the present time will indicate the lines upon which the extensions are to be carried out. The turbine and boiler houses will be of similar construction to the existing buildings, *i.e.* steel frame building with galvanised corrugated iron walls. The turbine room will be 90 feet long by 60 feet wide, and the boiler house 130 feet long by 90 feet wide. Accommodation is being provided for the storage of about 1,000 tons of coal in overhead coal bunkers above the firing floor. Coal will be delivered to these bunkers by means of coal handling plant capable of dealing with 60 tons per hour. The coal can be conveyed direct from the coal store, 11,000 tons capacity, situated between the river and the power station, or direct from the barges by the use of a travelling transporter and belt conveyor. Between the boiler house and turbine room, running the whole length of the building, space is provided in a bay 20 feet wide for the boiler feed pumps, forced draught fans and hot wells on the ground floor level, whilst on the floor above this accommodation is being provided for a mess room and offices for the European staff, and also a mess room and other conveniences for the native staff.

The switch and transformer house will be built entirely of reinforced concrete as a separate annex to the turbine room, the length of this building being 85 feet by 30 feet wide. For the circulating water pumps four additional pump chambers will be sunk in the river adjacent to the existing pump houses. At the present time it is only intended to instal two pumps, but it is considered advisable to sink the pump chambers for future extensions at the same time.

Generating Plant

Two turbine driven generators each of 10,000 kilowatts capacity and one of 5,000 kilowatts capacity are to be installed, thus increasing the plant capacity of the station by 25,000 kilowatts, making the total at Riverside 39,000 kilowatts. The turbines are designed to operate with steam at a pressure of 180 lbs. (boiler pressure 200 lbs. per square inch), superheat up to 200° Fahr. The alternators are designed to generate at a pressure of 6,000 volts, and by means of step-up transformers, connected directly to the generators, the pressure will be transformed up to 22,000 volts. The transformers are designed with an internal reactance of 5 per cent., so that by their use the employment of external reactances, now usually regarded as necessary in big power stations, will not be necessary. It is interesting to note that whilst one of the 10,000 kilowatt turbines will be of the impulse type, such as those already installed, the other 10,000 kilowatt set will be of the Parsons reaction type. These two machines will have to operate under exactly identical conditions, thus there will be excellent opportunities for observing the peculiar merits of the two machines, and enable a first hand experience to be gained with the examples of the two schools of thought on turbine design.

Switchgear

The 22,000 volt switchgear is of special design and arranged with a view to securing the greatest reliability and safety in operation. It is arranged as far as possible so that a breakdown to one part should not seriously affect the other sections. It occupies three separate floors and the lay-out is designed to ensure ease and reliability of operation, and to reduce the risk of fire to a minimum. The switchgear chosen is of an expensive type, but it is fully recognised that switchgear is the most vital part of a station and that it is false economy to cut down the cost of that particular section. The general lay-out of the switchgear is the result of the Department's own ideas, together with improvements which have been suggested from observations made in some of the newest and most up-to-date power stations in Great Britain and the United States, and through the courtesy of prominent engineers who have kindly allowed an examination of the switchgear, plans and designs of projected large power stations with which they are connected. The writer's particular thanks are due to Mr. W. Lackie, Engineer-in Chief of the Glasgow Corporation Electricity Department and Mr. P. V. Hunter of Newcastle-on-Tyne.

Boilers

There will be eight new boilers installed, all of the Babcock and Wilcox water tube marine type, fitted with self-contained superheaters and feed water heaters. Each boiler is designed to evaporate 40,000 lbs. of water per hour at a pressure of 200 lbs. per square inch and at a temperature of 575° Fahr. under normal conditions, but to be capable of giving an evaporation up to 50,000 lbs. with increased draught. For each pair of boilers one steel chimney is being provided, together with an induced draught fan driven either by electric motor or steam engine as may be desired. In addition to this an electrically driven fan will provide forced draught to supplement the induced draught. The method to be adopted is known as the balanced draught system, which is coming into common use in modern stations. Six of the boilers will be fitted with Babcock and Wilcox chain grate stokers, and the two remaining boilers with the Taylor underfeed stoker.

Pumping Plant

Two vertical electrically driven centrifugal pumps, each capable of delivering 20,000 gallons of water per minute against a head of 45 feet, will be installed for the provision of circulating water for the condensers.

Underground Cables

To connect Riverside Power Station with Fearon Road distributing station, four underground cables, each of .15 square inch sectional area, constructed for a working pressure of 22,000 volts, will be laid. These cables will be of split conductor type which type will be adopted for all future extra high pressure cable work in Shanghai, where the importance of the feeders merits the higher cost of these cables over the ordinary 3-core ones. The split conductor system has been decided upon after very careful investigation, the conclusions arrived at being that it offers the best cable protection at present available. The adoption of this system makes it necessary for the switchgear at both Riverside and Fearon Road to be of a rather more expensive type, since the splitting of the conductors necessitates extra switches at both ends of the line.

At Fearon Road Station the current will be transformed down from 22,000 to 6,300 volts by means of step-down transformers similar to the ones to be installed at Riverside but with a smaller internal reactance. Connexion will be made between the existing 6,300 volt switchgear and the transformed current conveyed by the new 22,000 volt underground feeders, which will increase the available output of electricity, at the 6,300 volt distributing pressure, to the various sub-stations in the Central, Eastern and Northern districts. Arrangements are also being made whereby current may be supplied to the Western district at Tonquin Road substation direct from Riverside at 22,000 volts pressure, using Fearon Road as a looping-in and sectionalising point.

22,000 volt switchgear is also being provided for the Fearon Road Station to control that end of the 22,000 volt underground cables and also the step-down transformers interconnecting the two stations. Before this plant can be installed it will be necessary to remove the separately fired superheater and four of the boilers at Fearon Road. This work cannot be proceeded with until one of the 10,000 kilowatt turbines is commissioned at Riverside.

With regard to the choice of 22,000 volts as a transmission pressure for trunk cables, this pressure was selected as the result of much investigation and the collected experience of the working of extra high pressure underground cables. It was selected as being preferable to 33,000 volts suggested in the last Annual Report. Although 33,000 volt cable has been made, it did not appear to offer advantages over the 22,000 volt cable in economy, whereas its adoption would have increased the cost of all attendant switchgear. The conclusion formed was that whereas 22,000 volts is an economical pressure to adopt

33,000 would offer less advantage. After more experience has been gained in the manufacture and use of extra high pressure cables, it is probable that a pressure of 40,000 volts will under certain conditions become standard in the future, where the distance of transmission would make it more economical to use such voltage. So far, the distance over which energy has to be transmitted in Shanghai would not justify the higher voltage, and it may be safely concluded that the adoption of 22,000 volts is the best selection for the local conditions.

Appended is a Report of the various tenders received. The actual contracts placed do not in all cases correspond with the prices shown in the list of tenders. This is explained by the increased cost of raw materials since the tenders were submitted and before the contracts were placed. Other modifications were also necessitated by reason of the additional 5,000 kilowatt turbo-generator, which it was finally decided to provide, but for which no provision was made in the original switchgear or transformer specifications, these having been drawn up for a 20,000 and not a 25,000 kilowatt extension. Therefore additional switchgear and transformer capacity and larger circulating water pumps have to be provided which, together with increased costs, have made the contract prices come up to the figures shown in the list of actual contracts placed.

Extensions

Joint Report by Mr. A. H. Preece and Mr. T. H. U. Aldridge on Recommendations relating to the placing of orders for New Plant. The following tenders were received on Steelwork for Buildings:—

Steel Work Tenders

	Price. £	*Delivery.* Weeks.
United States Steel Products Co.	8,026 (@ G. $4.7 = £1)	12
Lysaght, Ld.	12,939 8. 0.	26
Head Wrightson & Co.	14,198 11. 1.	36
P. & W. McLellan	Schedule only	48

The tender of the United States Steel Products Co., is recommended for acceptance.

Turbo-Alternators Tenders Received

Firm	Alternator	K.W.	Speed R P.M.	Price £	Delivery Weeks	Full Load Steam lbs.	£ per K.W.
—	—	—	—	—	—	—	—
Fraser and Chalmers	Vickers	5,000	3,000	16,009	27	13.0	3.2
Escher Wyss	Brown Boveri	5,000	3,000	16,448	26	12.62	3.36
Willans & Robinson	Siemens	do.	do.	16,730	52	12.85	3.34
Oerlikon	Oerlikon	do.	do.	16,950	30	12.78	3.38
Dick Kerr	Dick Kerr	do.	do.	18,036	—	13.2	3.6
D. Adamson	Siemens	do.	do.	18,394	52	13.8	3.67
C. A. Parsons	Parsons	do.	do.	18,555	44	12.25	3.7
Richardsons-Westgarth	Siemens	do.	do.	18,860	52	12.52	3.76
Howden & Co.	Siemens	do.	do.	18,900	38	13.6	3.76
Willans	Siemens	6,000	1,500	19,927	36	12.75	3.34
Westinghouse	Westinghouse	5,000	3,000	21,136	33	15.0	4.23
Oerlikon	Oerlikon	7,000	do.	21,449	30	12.71	3.06
Belliss	Vickers	do.	1,500	23,619	35	13.05	3.37
Brush Co.	Brush	6,000	do.	24,010	47	12.9	4.0
Howden & Co.	Vickers	7,500	do.	34,605	48	13.05	3.3
General Electric Co. (U.S.A.)	G. E. Co.	do.	do.	25,750	30	12.55	3.43
Dick Kerr	Dick Kerr	8,000	do.	27,406	—	13.1	3.42
Fraser & Chalmers	Vickers	10,000	do.	27,427	50	12.75	2.74
B. T. Houston Co.	B. T. H.	do.	do.	27,554	39	12.5	2.75
Willans	Siemens	do.	do.	28,362	52	12.55	2.83
Escher Wyss	Brown Boveri	do.	do.	30,550	40	12.65	3.05
Howden & Co.	Siemens	do.	do.	31,690	52	12.95	3.16
General Electric Co. (U.S.A.)	G. E. Co.	do.	do.	31,720	32	12 85	3.17
Oerlikon	Oerlikon	do.	do.	31,913	37	12 61	3.19
C. A. Parsons	Parsons	do.	do.	32,605	52	11.9	3.26
Westinghouse (U.S.A.)	Westinghouse	do.	do.	33,780	25	13.5	3.37
Richardsons-Westgarth	Siemens	do.	do.	33,984	52	12.5	3.39
Adamson	Siemens	do.	do.	35,654	60	12.8	3.56
Brush Co.	Brush	do.	do.	39,710	72	12.65	3.9

The conclusions arrived at as to the most suitable sized units of plant, having regard to cost, efficiency, space occupied as affecting buildings, foundations, pipework, etc., are these:

Two sets each of 10,000 kilowatts output would be the best selection, but in view of the longer time machines of this size would be in building, the greater difficulties of handling and longer period for erecting them on site, as compared with a 5,000 K.W. set, it is deemed advisable to recommend that one machine of 5,000 K.W. should be ordered. It being recognised that additional plant is urgently needed, and whilst the introduction of a 5,000 K.W. unit may not represent the best engineering or commercial practice, the times are such that in order to more certainly ensure continuity of supply to consumers, it is safer in the general interests to secure a set of this size in order to meet the increasing demands on the power station. All things considered there is more likelihood of getting a machine of this size built, shipped and put into commission quicker than a 10,000 K.W. set. Assuming that this machine can be ready for service in August next year it would then be possible to meet the 1916 winter load, although the station would not have a full margin of reserve plant installed unless one of the larger sets, which should also be ordered, is also ready. Nevertheless the purchase of a 5,000 K.W. set would undoubtedly place the Department in a safer position in so far as it would enable the 1916 demands to be met. With regard to the permanent economical value of the set no apprehension need be felt since the guaranteed steam consumption is satisfactory, and the cost per kilowatt is £3.2 as compared with £3.17 and £3.26 for 10,000 K.W. machines. Summarising the position it may be stated that whereas in normal times, or, if there was no great hurry for additional plant, we should advise the installation of two 10,000 K.W. machines only, existing circumstances justify a departure in order to meet the exigencies of the situation.

To provide for the balance to make up the station capacity to 20,000 K.W. the following suggestions are made: That inasmuch as the buildings can accommodate two 10,000 K.W. units in addition to the proposed 5,000 K.W. set, and in order to further postpone another large extension of the power station buildings in a few years' time, we consider that the installation of two 10,000 K.W. sets would best meet the case. This will give an increase of 5,000 K.W. above the original 20,000 K.W. proposal, but with the adequate boiler plant which it is proposed to install, together with existing boilers, full use of this additional capacity can be made. Should our proposals be agreed to we recommend ordering one 10,000 K.W. machine for delivery next year, and the second one for delivery in the spring or early summer of 1917.

The following tenders are selected for the Committee's approval:—

Messrs. Fraser & Chalmers, London, one 5,000 K.W. turbo-alternator turbine by Fraser & Chalmers. Alternator by Messrs. Vickers, Ld., Price, £16,009—delivery 27 weeks—Steam consumption 13 lbs. per K.W. hour.

Messrs. Parsons & Co., Newcastle-on-Tyne, one 10,000 K. W. turbo-alternator. Price £32,605—Delivery 52 weeks—Steam consumption 11.9 lbs. per K.W. hour. The General Electric Co. of New York one 10,000 K.W. turbo-alternator. Price £31,720—Delivery 32 weeks—Steam consumption 12.85 lbs. per K.W. hour.

The selection of Messrs. Parsons' tender, although not by any means the lowest, is due to the fact that this firm has already built machines of this size and over—one of 25,000 K.W. for the Chicago Edison Co., and that the very low steam consumption guaranteed more than compensates for the higher price of the plant. It is estimated that under ordinary conditions of working, such as pertain at Riverside, a saving of some £6,000 per annum on the coal bill would be effected when compared with the performances of other machines offered. In other words, the low steam consumption represents a saving of £6,000 per annum which more than wipes off the higher first cost of the machine. If time were of no importance we should advise placing the order for both 10,000 K.W. sets with Messrs. Parsons, by so doing a large annual saving on the coal bill would be obtained.

Instead of calling for tenders for the boiler plant Messrs. Babcock & Wilcox were asked to submit a complete tender for 8 boilers, chain-grate mechanical stokers, feed water heaters, artificial draught plant and steel chimneys. All the existing boiler plant at both Fearon Road and Riverside, with the exception of two old boilers, is of Babcock & Wilcox make. It has given satisfaction and we are of opinion that for power station purposes there is no better boiler than this firm's marine type. The prices have been carefully checked against those charged for similar boiler plant in other power stations and allowing for the increased costs due to the war, the tender submitted is a fair one and the prices are not higher than might be expected.

All the existing boilers in the Council's power stations are fitted with the Babcock & Wilcox chain-grate mechanical stoker. The tender includes such stokers for the eight new boilers. Evidence collected in the United States and in England shows that for certain classes of coal and for certain operating conditions, a stoker of the underfeed type presents what appears to be advantages over the chain-grate stoker in that it enables a larger overload capacity to be obtained from the boiler than is possible with the chain-grate type. If the claims made for this stoker can be fully substantiated its slightly higher cost would justify its adoption for the whole of the new boiler plant. Investigations made by Mr. Aldridge in New York, Boston, Pittsburgh and Glasgow show that this stoker finds much favour. We do not, however, recommend its adoption for all the boilers and consider it would be advisable to equip only two of the eight boilers. If its claims are fully borne out by experience, and if it is as satisfactory

with local as with certain British and American coals, then in future extensions this type may be adopted, or some of the existing chain-grate stokers at Riverside may later on be changed. The recommendations with regard to the boiler house plant are:—

Messrs. Babcock & Wilcox, Ld., London, 8 Marine type water tube boilers complete with feed water heaters, Chain-grate mechanical stokers for 6 boilers, Induced and forced draught fans, etc., for 6 boilers, Three steel chimneys, Pipework, etc., etc. Price £65,217—Delivery Glasgow—26 weeks 1st portion, 39 weeks 2nd portion. Messrs. Scholey & Co., Ld., London, Taylor underfeed stokers for 2 boilers, Induced and forced draught fans, etc., for 2 boilers, One steel chimney for one pair of 2 boilers. Price £5,370—Delivery New York—26 weeks.

Coal Handling Plant

The following tenders were received:—Bennis & Co. £7,340; Fraser & Chalmers £9,817; Strachan & Henshaw £11,395; Babcock & Wilcox £18,238; Spencer & Co. £27,885:

It will be observed that there is a very large discrepancy between the lowest and the highest tender. The lowest tender submitted by Messrs. Bennis & Co. does not provide for the carrying of the transporter bridge. As under their scheme it would be necessary to construct high concrete walls for supporting the transporter bridge, the cost of these would bring the price of the complete coal handling plant up above the second tender, moreover, the general lay-out as regards coal handling facilities is not, in our opinion, as good as the next lowest tender. We recommend the tender of Messrs. Fraser & Chalmers for acceptance. Some slight additional cost may be necessary as Messrs. Fraser & Chalmers have not adequately provided for coal weighing apparatus but a sum of £200 should be sufficient to cover this.

For Extra High Pressure Switchgear for Riverside (22,000 Volts)

The following tenders were received:—Westinghouse Co. Pittsburgh £5,600; Ferguson Pailin & Co., Ld. £6,380; General Electric Co. (New York) £7,116; British Thomson-Houston Co., Ld. £7,233; Bertram Thomas £8,950; Switchgear & Cowans, Ld. £9,515:

The tender of the British Thomson-Houston Co., Ld., at £7,233 is recommended for acceptance. In connexion with this recommendation a few remarks in explanation of the reasons for advocating the acceptance of this tender are given. It is of the utmost importance that the switchgear of the main generating station and also at the important Fearon Road sub-station should be of the highest quality, as the successful operation of electricity supply depends very largely upon the switchgear.

The tender of the Westinghouse Co. of Pittsburgh is considerably lower in price, and the lay-out, although not in our opinion as good as the British Thomson-Houston Co.'s, which adheres in almost every detail to the design prepared in the Specification, is nevertheless a good one, but from experience we know that in placing orders for large and important switchgear such as this, modifications are often necessary from time to time during construction, and we feel that it is better to place the order with a firm who are in direct touch with the London office.

There is also another reason for preferring the British Thomson-Houston Co.'s offer, inasmuch as this Company has carried out a considerable amount of work in England in connexion with cable control designed on what is known as the split conductor system (which will be referred to later in this report when dealing with the underground cable contracts). This system, as far as we know, has only been applied in Great Britain, and on schemes designed by British engineers, and is not used in America. We consider it advisable to place the order for this important work with a firm which has already manufactured similar types of split conductor apparatus.

For the above reasons, having carefully considered the various tenders, we recommend accepting that of the British Thomson-Houston Co. of Rugby, at a total cost of £7,575, this figure it will be observed is higher than shown in the above list of tenders, viz. £7,233, this additional cost is entailed by our adoption of the split conductor cable system. If all the other tenderers re-quoted for split conductor switchgear their prices would be proportionately increased.

High Pressure Switchgear for Fearon Road (6,600 Volts)

The following tenders for this apparatus were received:—British Thomson-Houston Co., Ld. £1,565; Ferguson, Pailin & Co., Ld. £1,685; Westinghouse Co., Pittsburgh, £2,015; We again recommend acceptance of the British Thomson-Houston Co.'s tender.

Extra High Pressure Switchgear for Fearon Road (22,000 Volts)

Under the original scheme no provision was made for 22,000 volt switchgear at Fearon Road, because it was intended to connect the trunk feeders direct to the step-down transformers and control the switching operations on the cables from the 6,600 volt side only. Saving in cost was the prime motive for adopting this arrangement, but after the specifications for cable were issued it was found that similar protective apparatus to that which is already employed on four of the existing trunk feeders between Riverside and Fearon Road, which it was intended to again adopt in this case, could not satisfactorily perform similar functions when used with step-down transformers interposed. It, therefore, became necessary to amplify the switching arrangements at Fearon Road by the introduction of 22,000 volt switchgear in addition to 6,600 volt switchgear. As this apparatus has to work on the split conductor system, and in view of our recommendation that the Riverside switchgear should be given to the British Thomson-Houston Co., we consider it advisable to place the order with the same firm. It is not of such expensive design as the main switchgear at Riverside, but for technical reasons this is not necessary. The final arrangements for this apparatus had not been concluded when Mr. Aldridge left London, and prices are not yet to hand because the final arrangement has only just been decided upon here. It is estimated that the cost of this switchgear will be about £3,000.

Circulating Water Pumps for Condensers

The following tenders were received:—

	Price.	Maker of Motor.
	£	
Drysdales, Ltd.	5,407	
Worthington Pump Co.	5,417	E. C. C.
Rees Roturbo Co.	5,537	E. C. C.
Rees Roturbo Co.	5,743	Crompton.
Mather & Platt, Ltd.	5,976	Mather & Platt.
Gwynnes	*3,404	Westinghouse.

*Does not include steel pipes.

With regard to the above tenders which include the steel pipe between the pump house on the river and the turbine room, the price for the steel pipework in the different tenders varies considerably, and we therefore consider that it would be better to eliminate this item from these tenders and obtain new tenders for the pipework direct from the manufacturers of pipes. Eliminating this pipework the tenders come out in the following order:—

Drysdales	£3,157	
Gwynnes	3,404	
Worthington (H.P. each 290)	3,474	£6 per H.P.
Mather & Platt (H.P. each 400)	3,697	£4.6 per H.P.
Rees Roturbo	3,862	
Rees Roturbo (alternative)	4,113	

In these specifications details of the amount of water to be pumped and frictional head, etc., were given, but no two tenderers have put in offers to exactly the same conditions. The two lowest tenders, viz. those of Messrs. Drysdales and Gwynnes, do not provide sufficiently large pumps and motors for driving them as in our opinion would fulfil the requirements called for in the specification. With regard to the two next tenders, viz. those of the Worthington Pump Co. and Messrs. Mather & Platt, the former provide only 290 H.P. for driving each pump whereas the latter provide 400 H.P., therefore, the bigger plant would in practice be preferable because it would allow a bigger margin of safety at very low tide, also when the condensers are dirty and more power is required to force the water through them. If the two tenders are regarded in cost per H.P. provided, then the Worthington Pump Co.'s works out at £6 per H.P. and Mather & Platt's at £4.6. This being so, the latter is really the cheaper plant. As to the design and workmanship of the two firms, there is practically nothing to choose, we recommend the acceptance of Messrs. Mather & Platt's tender at £3,697, as this, without paying appreciably more for it, would give a bigger margin of safety and pump a greater quantity of water under the worst conditions that may obtain at Riverside.

Static Transformers

The following tenders were received to the specification for transformers:—

	Price.
	£
Westinghouse Co.—G. $59,276	12,300
General Electric Co. of New York	18,874
British Electric Transformer Co.	22,031
Oerlikon Company	*23,050
Brush Electric Engineering Co.	26,304
Ferranti Ltd.	†12,546

*Does not include oil.

†Quotation is for a portion only of the Transformers.

The inclusion of a 5,000 K.W. set has necessarily increased the number of transformers required at Riverside, furthermore the necessity of having 22,000 volt switchgear at Fearon Road makes advisable a different grouping of transformers and an alteration in the size of some of them. The total transformer capacity to be provided is 76,000 K.V.A. and the estimated cost is approximately £15,890.

The tender of the Westinghouse Co. of Pittsburgh is recommended for acceptance, the price being very considerably lower than the next tender, viz. that of the General Electric Co. of New York. The efficiencies and guarantees given are equally as good as those given in any of the other tenders and we consider that this firm's tender should be accepted. Modifications brought about by the addition of the 5,000 K.W. set and the re-grouping of the transformers differently to the scheme at first drawn up, means getting some 3,000 K.V.A. transformers which were not called for in the specification. The price of these has been estimated as closely as possible. With the exception of five transformers required for raising the pressure of the two existing cables connecting Fearon Road and Tonquin Road sub-stations, which are urgently required, the others are not really necessary until the end of the year, as until some of the boilers can be removed from Fearon Road there will not be room for installing the transformers in the space set free.

Extra High Pressure Underground Cables 22,000 Volts

The following tenders were received to the specification calling for 40,000 yards of cable together with jointing boxes, etc.

	Schedule A	Schedule B
	Actual Tender	Adjusted
	£	£
Standard Underground Cable Co.	33,904. 0.5	34,727. 5.0
Siemens Brothers	37,227.15.0	36,666.15.0

British Insulated & Helsby Cables Co.	38,272. 6.0	38,251.10.0
Johnson & Phillips	38,818. 0.0	38,980. 7.8
W. T. Henley's Telegraph Co.	40,355.10.0	39,838. 5.0
Pirelli, Ld.	37,845. 2.0	39,893. 5.4
Western Electric Co.	41,449.12.4	41,395.11.6
Callenders Cable Co. (Joint boxes split horizontally)	43,944.12.0	43,456.12.0
Callenders Cable Co.	44,303.14.0	43,815.14.0
Union Cable Co.	47,400. 0.0	46,864. 0.0
W. T. Glover & Co.	47,835. 6.6	47,533.12.6

Schedule A shows the prices as received. Schedule B shows the prices adjusted, to a common price of copper and lead, which is really a truer comparison of the relative tenders. In the section of this report dealing with extra high tension switchgear, mention was made of the adoption of the split conductor system of cable protection. In this connexion it should be explained that the original specification for underground cable was drawn up for 3-core cable, which was to have been protected by apparatus similar to that already installed on some of the existing underground cables. Only after these tenders had been received it was found that owing to the interposition of step-down transformers at Fearon Road, the system would not be satisfactory. Very careful investigation leads us to the conclusion that the best system at present in use is that known as the split conductor system, which, from the experience so far known, gives greater reliability in service than other systems in use. Whilst many electricity supply undertakings have more or less satisfactorily carried on with protective gear as in use in Shanghai, it has been found that when such undertakings become very large phenomena occur which in the smaller systems are not met with. The efficient protection of cables and their attendant switchgear is a matter which has received a great deal of attention during the past few years. Great damage may be caused, not only to the cables themselves, but to other parts of the plant, by cables breaking down. A system, which instantaneously cuts off the current from such cables when they are damaged, may save thousands of pounds of damage to other apparatus and plant. In view of this, therefore, we consider it advisable to incur the additional cost of split conductor cables, regarding such expenditure as an additional insurance against interruption to the supply and loss of money consequent upon damage.

The manufacture of split cables is at the present time more special than ordinary 3-core cables, and as far as we know has not been made by more than a few of the firms who quoted to the original specification for 3-core cable. It having been decided to recommend the Council to use split conductor cables, the three following firms were asked to submit tenders for the supply of such cable, viz:—Messrs. Siemens Brothers, Henleys and the British Insulated & Helsby Cables Co., Ltd.

Siemens Bros.	£ 41,058
British Insulated & Helsby Cables Co.	43,490
Henleys, Ltd.	43,900

We recommend acceptance of the British Insulated & Helsby Cables Co.'s tender.

Pipework

There is still a certain amount of pipework for which tenders should be called, but specifications for this cannot be issued until the final drawings of the boilers and steam turbines are received from the builders. As soon as these drawings are received the final lay-out of the plant can be completed, the pipework can then be ordered to fit in with these arrangements.

T. H. U. ALDRIDGE,
A. H. PREECE.

GENERAL CONDITION OF FINANCE AND ECONOMY IN JAPAN IN 1914-15

The General Budget for the Financial Year 1914-15 which was presented at the thirty-first session of the Diet failed to pass owing to differences between the two Chambers respecting the Warships Construction Vote, and the Government was compelled by the provisions of Art LXXI of the Imperial Constitution to carry into effect in the new year the Budget of the preceding year. And accordingly the Government, following precedents, framed within the limits of that budget a sort of self-denying working budget, which put the total revenue at yen 654,282,173 (£ 67,016,509) and the total expenditure at yen 559,759,598 (£ 57,334,794), thus giving a surplus of yen 94,522,575 (£ 9,681,661). At its thirty-second, thirty-third, and thirty-fourth sessions, the Diet passed the votes of yen 1,230,000 (£ 125,986) for the funeral expenses of the Empress Shoken and yen 6,520,000 (£ 667,828) for warships construction expenses and assented to the transfer of yen 51,000,000 (£ 5,223,804) to the extraordinary military expenses special account in consequence of the opening of hostilities with Germany and of yen 2,000,000 (£ 204,855) to the war reserve fund for 1914, making a total of yen 60,750,000 (£ 6,222,473). Moreover, yen 2,490,000 (£ 255,045) was added to the working budget for transfers to the sinking fund and for various repayments and other purposes, and at the same time, in order to carry out the policy of financial retrenchment in regard to the war, the general expenditure was curtailed and undertakings to be executed with continuing expenditures were postponed. By these means the annual expenditure was reduced by yen 2,160,000 (£ 221,243) and the revenue augmented by yen 32,000 (£ 3,278), with the result that the total revenue stood at yen 654,310,000 (£ 67,019,359) and the total expenditure at yen 623,850,000 (£ 63,899,416), thus yielding a surplus of yen 33,550,000 (£ 3,436,444).

Upon comparing the actual results of the revenue for the Financial Year 1913-14 with the Budget estimates, we find that in the ordinary section there was an increase of yen 32,530,000 (£ 3,331,968) in taxes and duties, mainly owing to increased revenue from Customs duties, sugar excise, and *sake*, income, and business taxes, and an increase of yen 1,750,000 (£ 179,248) in stamp duties, and in regard to Government undertakings and State property, although there was more or less decrease in the revenue from posts, telegraphs, and telephones, there was an increase principally in the profits of the Monopoly Bureau, Steel Foundry, and Tokyo and Osaka Arsenals, which gave a net increase of yen 8,970,000 (£918,775), making the total increase in the ordinary section yen 42,200,000(£4,322,442). In the extraordinary section, there was a decrease of yen 4,870,000 (£ 498,822) in the transfer to the waterways improvement fund and of yen 2,530,000 (£ 259,142) in the public loan proceeds and other items; but on the other hand, there was an increase of yen 87,170,000 (£ 8,928,608) in the surplus brought over from the preceding year and yen 5,500,000 (£ 563,351) in miscellaneous receipts, showing a net increase in the extraordinary section of yen 85,350,000 (£ 8,742,190). Thus, the total ordinary and extraordinary revenue came up to yen 721,970,000 (£ 73,949,606), being an increase of yen 127,550,000 (£ 13,064,632) on the estimated total revenue, which had been put at yen 594,410,000 (£ 60,883,950). It should be added that the increase of yen 42,200,000 (£ 4,322,442) in the ordinary section takes into account the increase of yen 2,290,000 (£ 234,559) in the ordinary revenue in consequence of administrative adjustment and the decrease of yen 9,140,000 (£ 936,188) in the revenue as a result of the adjustment of the tax system, so that the natural increase in the ordinary section really amounted to yen 49,050,000 (£ 5,024,070).

Next, although the time has not yet arrived for ascertaining the actual results of the revenue for 1914-15, it is anticipated that in the ordinary section, when compared with the figures of the working budget, there will be a decrease of about yen 13,630,000 (£ 1,396,087) in the Customs receipts in consequence of the great war, and while there will be a decrease in the receipts from the textiles consumption and bourse taxes, there will be an increase in the receipts from sugar excise, and income, *sake*, and business taxes, so that there will be a net increase of yen 2,350,000 (£ 240,705) in the revenue from taxes and duties; and as regards the Government undertakings and State property, while there will be a decrease in the receipts from posts, telegraphs, and telephones, and from forests, an increase is anticipated in the profits of the Steel-Foundry, Government Printing Office, Tokyo and Osaka Arsenals, Senju Woollen Manufactory, and Monopoly Bureau, dividends, &c., so that there will be a net increase of yen 1,970,000 (£ 201,782); but as there will be a decrease of about yen 1,750,000 (£ 179,248) in stamp receipts, besides decreases in some other items the total net increase will be yen 2,030,000 (£ 207,928). In the extraordinary section, there will principally be an increase of yen 71,420,000 (£ 7,315,374) in the surplus brought over from the preceding year, and there will also be an increase in the proceeds of sale of State property, so that the total increase will be about yen 78,160,000 (£ 8,005,736). Accordingly, the total ordinary and extraordinary revenue will come up to yen 734,510,000 (£ 75,234,047), being an increase of about yen 80,200,000 (£ 8,214,688) on the total revenue given in the working budget which amounts to yen 654,310,101 (£ 67,019,369).

In the Financial Year 1914-15, while, on the one hand, there was, in consequence of the great war in Europe, a considerable reduction in revenue and also in the annual expenditure, a large amount of extraordinary expenses was required in the same connection, efforts were made on the other hand to strengthen the financial basis by strenuous adjustment of finance and administration, curtailment of expenditures, and postponement of undertakings. A change was made in the financial year for deferred payments for monopoly goods and the relations between the receipts and disbursements of the National Treasury were improved. And as through these measures there was always a large surplus in the National Treasury, no need was felt at all during the financial year under review for the issue of Treasury bills.

A Brief Account of the Economic Condition

The following are the principal events in the Japanese economic world in 1914:—

The economic world in 1913 required a large amount of capital, as has been explained in the Financial and Economic Annual for 1914, on account of the progress of already-planned undertakings and for the settlement of the balance of foreign trade, with the result that the money market was on the whole in a tight condition. In the first half of 1914 the money market continued to be in the same condition: especially in February and March, as a result of many political dissensions in the Diet, the financial world took up a cautious attitude, and there was from January onward, a decrease, as compared with the same period of the preceding year, in the amount of new undertakings planned, amount of increase in nominal and paid-up capitals, amount of

debentures issued, and volume of foreign imports; the issue of convertible notes by the Bank of Japan was also continually lower than in the same period of the preceding year, and prices continued to fall.

At the end of March the General Budget for the Financial Year 1914-15 failed to pass the Diet and the Cabinet resigned in a body. In the middle of April the present Cabinet was formed. Soon after its formation the new Cabinet recognised the necessity of changing the financial policy which had up to that time been followed, especially in regard to public loans, and decided not to raise new loans either at home or abroad. In consequence, it was resolved, in regard to that portion of the fund for the construction and improvement of State railways which required to be borrowed, to reduce the amount annually set apart for redemption of loans from yen 50,000,000 (£ 5,121,377) to yen 30,000,000 (£ 3,072,826), and to loan the difference, that is, yen 20,000,000 (£ 2,048,551) from the general account to the railway account, and to pay in future out of the general revenue the money which had till then been obtained by means of public or temporary loans for the construction of railways in Chosen and repairing of rivers in Japan Proper; and at the same time plans were formed to use a large portion of the general account surplus (amounting at the time to yen 120,000,000 (£ 12,291,304)) which had accumulated from the preceding year as a result of financial and administrative adjustment and had not yet been specified for definite use, as a fund for a change of the terms for the payment of taxes and duties and suspension and transfer of already-fixed temporary loans; in this manner the receipts and disbursements of the National Treasury were to be harmonised, the issue of Treasury bills to be reduced, and appropriate reduction of taxes to be effected. While the above plans were to be carried out, the question of specie reserve was to be left to natural economic agency and to the sense of self-preservation on the part of the Bank of Japan, and thus the Government made clear its intention not to import foreign capital itself.

This financial programme won general admiration as one suited to the times; but as it was deemed that its effect would be great upon our economic world which had always been comparatively easily affected by financial movements and upon the financial world which had for many years been annually importing large amounts of foreign capital, the Bank of Japan raised its discount rate on the 6th July from 6.57 per cent. to 7.3 per cent. per annum and thus kept step with the new policy of the Government.

At the end of July, however, the sudden outbreak of war on an unprecedented scale among the great European Powers caused such a shock to the financial and economic circles of the whole world that they fell into a panic; and it was only natural that our country should also be seriously affected by it. The principal effects in Japan were the danger to navigation, rise of marine insurance rates, reduction and difficulty of importation and exportation, changes in foreign exchange rates and difficulty in drawing exchange bills, sudden fall in price of raw silk and cotton yarns, our most important articles of export, and rise in price of dyestuffs, chemicals, and many other articles of import. These effects were most marked in the early days of August.

Our financial and economic condition at the outbreak of war may be summarised as follows:—

1. There was a large surplus in the National Treasury;
2. There was no need for raising a public loan in order to carry the Budget into effect;
3. There was no intention to rely upon foreign capital for future financial operations;
4. The general economic world was already in a cautious attitude on account of the raising of the discount rate by the Bank of Japan on the 6th July;
5. The circulation of currency having gradually contracted since the preceding year, the issue by the Bank of Japan of its convertible notes beyond the prescribed limit as had for a long while been the case, ceased altogether and its resources comparatively large;
6. The balance of foreign trade improved considerably, and the excess of imports was rapidly being reduced as compared with the preceding year.

As the country was thus in a condition as if it had purposely prepared itself for an emergency, the general economic world was strong enough to oppose the effects of the situation. Accordingly there was no need in our country to adopt such extraordinary economic measures as were taken by many countries of the world, like suspension of conversion of notes by the central bank, prohibition of exportation of gold coin and bullion, moratorium, issue of emergency paper money, and various restrictions upon bourses. The only steps taken in this connection were the Government guarantee of war marine insurance and accommodation by the National Treasury of a capital of yen 8,000,000 (£819,420) for the relief of producers of raw silk and other important articles of export who were suffering from a heavy fall in market prices and sudden diminution of sale. Even the discount rate of the Bank of Japan was not raised at all after the outbreak of war.

Although upon the rupture of diplomatic relations with Germany on the 23rd August, our army proceeded to seize Tsingtau and our navy took hostile actions in various parts of the Pacific Ocean, our financial condition being as above stated, we were able to defray our war expenses entirely out of the surplus revenue and therefore we did not need not only to raise a loan or increase taxes to meet the expenses of our war with Germany, but even to issue Treasury bills. Although it had for many years been usual to have large amount of Treasury Bills outstanding, such amount altogether disappeared from the middle of February, 1914, to the end of the year. Only, as the surplus was, in consequence of the war with Germany and the European war, applied to purposes other than those planned for, it was eventually found impossible to use it for the reduction of taxes, change of the terms for the payment of taxes, and other purposes as had been originally planned.

Navigation, foreign exchange, foreign trade, and production of articles of export were seriously affected by the outbreak of war in Europe; its effects were also more or less felt in the general economic world, and the financial world maintained in the latter half of the year the attitude of caution which it had assumed in the former half.

The statistics showing the activities of the economic world under the influences above referred to reveal a decrease in every respect in 1914 as compared with the preceding year, thus:

1. The average issue for the whole year of the convertible notes of the Bank of Japan was yen 315,000,000 (£ 32,264,673), a decrease of yen 19,000,000 (£ 1,946,123) on the preceding year;
2. The amount of newly-planned undertakings was yen 250,000,000 (£ 25,606,883), a decrease of yen 130,000,000 (£ 13,315,579) on the preceding year;
3. The increase of the nominal capital of companies was yen 162,000,000 (£ 16,593,260), which was less than that in the preceding year by yen 109,000,000 (£ 11,164,601);
4. The increase of the paid-up capital of companies was yen 165,000,000 (£ 16,900,543), which was less than that in the preceding year by yen 13,000,000 (£ 1,331,558);
5. The issue of debentures amounted to yen 52,000,000 (£ 5,326,232), which was less than that in the preceding year by yen 12,000,000 (£ 1,229,130);
6. The average index number of prices of commodities in Tokyo was 4½ less than in the preceding year.

Further, a special phenomenon of the year was the unprecedented crop of rice, the product of our most important industry, and principal foodstuff of our people. Its production amounted to 57,000,000 *koku*, which was 7,000,000 *koku* in excess of the crop of a normal year. In consequence, its price which had been yen 22.80 (*£ 2. 6s. 9d*) in the early part of January, 1913 and yen 20.10 (*£ 2. 1s. 2d*) in the corresponding period of the succeeding year in the rice market of Tokyo fell by the end of the latter year to yen 11.60 (*£ 1. 3s. 9d*), which was such a heavy blow to the agricultural classes that an agitation arose in the Diet for their relief, the measure proposed being that the National Treasury should buy up a large quantity of rice in order to prevent the fall of its price.

Foreign trade also was affected by the influences above mentioned. The volume of imports was less than in the preceding year by yen 134,000,000 (£ 13,725,289) and stood at yen 595,000,000 (£ 60,944,382), and the exports were also less by yen 41,000,000 (£ 4,199,529) and stood at yen 591,000,000 (£ 60,534,672); thus the total trade amounted to yen 1,186,000,000 (£ 121,470,054) and showed a decrease of yen 175,000,000 (£ 17,924,818). The excess of imports over exports which was yen 97,000,000 (£ 9,935,471) in 1913 fell in the following year to yen 4,000,000 (£ 409,710), a decrease of yen 93,000,000 (£ 9,525,761).

Such a decrease of both imports and exports in one year is an anomaly that has not happened in the last quarter of a century, with the sole exception of that which occurred in 1908 after a panic in America. It is attributable partly to the European war and partly to the condition of the economic world at home; and this great decrease in the excess of imports was of material assistance in the solution of the specie question.

JAPANESE LIME FOR PHILIPPINES

The establishment of sugar centrals in the Philippines has stimulated interest in the industry of supplying hydrated lime for use in the refining processes. Inquiries have been received concerning the feasibility of importing hydrated lime from the United States, and requests made for data as to the sources from which the lime is now obtained.

The local lime industry is still in embryo, although there are abundant deposits of limestone, as well as excellent marble deposits such as those of the Romblon fields. Up to a few years ago all the lime produced here was made by Chinese burners, who gathered sea shells heavily loaded with sand, from deposits along the shore, and burned them in crude kilns, producing a lime about 30 per cent pure. This was used for building purposes and was not very valuable.

The lime used for refining sugar has been and now is imported largely from Japan. This Japanese lime is shipped to the Visayan sugar regions in kerosene cans, and sells for about $27 per short ton. In some places an attempt has been made, by sugar men themselves, to produce lime locally. At the Roxas hacienda in Batangas, a few years ago, an attempt was made to produce refining lime from limestone deposits in the neighborhood, but the burning process was crude and the product mixed with ashes.

The Bureau of Science undertook to demonstrate that good lime could be produced from local limestone deposits, and to that end built a modern kiln, burning lime from pure stone. Local sugar men were induced to try the lime in refining sugar, and it was found to work very satisfactorily. From these experiments of the Bureau of Science considerable interest has been created, and several projects have been started for the production of lime locally.

SHIPPING, NAVIGATION, AND HARBOUR-WORKS IN JAPAN

As a country like Japan, which is surrounded on all sides by sea, must depend for the development of its domestic industries and advance of its foreign trade solely upon the development of its navigation, the Government had long made efforts to protect and encourage navigation, and at length in March, 1896, issued the Navigation Encouragement Law (Law No. 15, 1896), according to which Japanese subjects, or trading companies whose partners or shareholders are all Japanese subjects, engaging in traffic between Japan and a foreign country or between foreign ports, subject to certain conditions were granted a navigation subsidy. But this law was, by Law No. 15 entitled the Ocean Service Subvention Law, promulgated in March, 1909, abolished after the last day of December of the same year. Under the new law, Japanese subjects, or trading companies whose partners or shareholders are all Japanese subjects engaging in transportation business receive navigation subsidies according to mileage, tonnage, speed, and age in respect of steel steamships with a gross tonnage of not less than three thousand tons, a speed of not less than twelve knots, and not more than fifteen years old, which have been registered in the shipping register of the Empire. Such vessels may be made to run regularly, for a period of not more than five years, on the four ocean lines, namely, to Europe, North America, South America and Australia.

The principal steamship companies which at present enjoy Government protection under the law above-mentioned and otherwise are the Nippon Yusen Kaisha (Japan Mail Steamship Company), the Osaka Shosen Kaisha (Osaka Mercantile Steamship Company), the Toyo Kisen Kaisha (Oriental Steamship Company), the Nisshin Kisen Kaisha (Japan-China Steamship Company), and the Nanyo Yusen Kaisha (South Sea Mail Steamship Company), and these five companies run steamers on the following lines:—

Nippon Yusen Kaisha. Besides engaging in the domestic coasting-trade (including Taiwan and Karafuto services), it runs regular services on the European, North American, Australian, Bombay, Calcutta, Shanghai, Vladivostok, North China, and Tsingtau lines.

Osaka Shosen Kaisha. Besides engaging in the domestic coasting-trade, it runs regular services on the North American, Tsuruga-Vladivostok, Otaru-Vladivostok, Dairen, Tientsin, South China, Bombay, Chemulpo, Hongkong-Haifong, Tsingtau, and Antung lines.

Toyo Kisen Kaisha. It runs steamers on the South American, North American, and Hongkong lines.

Nisshin Kisen Kaisha. It is engaged in the navigation of the Shanghai-Hankow, Hankow-Ichang, Hankow - Hsiangt'an, Hankow-Changta, Lake-P'oyang, Shanghai-Soochow, Shanghai-Hangchow, Soochow-Hangchow, Chinking-Tsingkiangpu, and Chinkiang-Yangchow lines.

Nanyo Yusen Kaisha. It runs regular services on the Java line.

Japan's shipping has since 1893 shown a steady increase in the number of vessels; and at the close of 1903 the country possessed 657,000 tons of steamers and 322,000 tons of sailing vessels, making a total of 979,000 tons for both descriptions; the tonnage of the steamer fleet was then about four times what it was nine years previously at the outbreak of the war with China. Nevertheless, her stupendous struggle with Russia necessitated a still further increase; accordingly, foreign vessels were bought, chartered, or given special permission to engage in the coastwise trade. In the course of the year 1904, the losses connected with the blockade of Port Arthur and those due to other causes came up to 71,000 tons; but on the other hand, 27,000 tons of steamers were built in Japan and 117,000 tons were purchased from abroad, making a total of 204,000 tons. Thus, the net increase was 133,000 tons, and the steamer fleet rose from 657,000 tons at the close of 1903 to 790,000 tons twelve months later. At the end of 1914 the registered gross tonnage of steamers was increased to 1,577,025 tons and that of sailing vessels to 513,244 tons, making a total of 2,090,269 tons.

Turning next to the shipbuilding industry of Japan, we find that it had already made steady progress when the Shipbuilding Encouragement Law and the Shipbuilding Regulations came into operation in 1896; and the industry has since advanced with remarkable energy. Prior to the operation of that law, vessels exceeding a thousand tons were usually purchased from abroad. But since this time, under the law referred to, bounties have been granted for the construction of iron or steel vessels of not less than 700 gross tons by any Japanese subject or any commercial company whose partners or shareholders are all Japanese subjects, that is engaged in shipbuilding. In consideration of the necessity of the then circumstances and in view of the increase of Japan's naval strength and the progress of her shipbuilding art, the law was revised in March, 1909 so as to grant bounties only for the construction of steel vessels of not less than 1,000 gross tons and put in force on January 1st, 1910. The encouragement given by the Government in the matter has been so great that by the end of 1914 there were altogether 131 vessels of 700 gross tons and upward built in Japan, aggregating 428,832 tons. Under such circumstances Japan's shipbuilders have been successful in building big warships and large ocean liners which are fully qualified to run on many important foreign service lines, and they have, moreover, built vessels to foreign orders. By the end of 1914 there were altogether 244 private shipyards and 63 private dry docks in Japan.

With respect to harbour-works in Japan, after Yokohama and several other localities had been selected as open ports in the Ansei era (1854-59), they were fitted for use as commercial ports merely by taking advantage of their natural features in making suitable accommodation for the purpose; but with the progress of the nation its foreign trade annually increased to such a large volume that the existing accommodation became inadequate; and so its extension and improvement came to be planned after a careful consideration of the actual condition of the harbour.

At present Japan possesses thirty-seven open ports, but the bulk of its trade is carried on through the two harbours of Yokohama and Kobe. Yokohama celebrated in July, 1909 the jubilee of its opening to foreign trade, while Kobe is 48 years old. Their progress is an index of the striking development of the whole country. The principal harbour-works are the following:—

Yokohama Harbour.—The harbour is enclosed by two breakwaters, one in front of the harbour extending south-east to the length of over 5,380 ft. and the other extending north-east to the length of over 6,700 ft., leaving a harbour entrance 800 ft. wide and 33 ft. deep below the lowest spring tide. The breakwaters, together with training wall of 6,090 ft. built for the purpose of regulating the river streams, encompass within the harbour a safe anchorage of about 1,230 acres. The iron landing pier is 62½ ft. wide and over 1,800 ft. long, projecting in front of the Custom House. Coupled with these engineering works, various schemes for improvements were started both on land and sea, such as the construction of private docks, sheds, and warehouses.

The equipments in the old Customs compound were also improved, and the compound covers an area of 11 acres with 12 sheds covering an area of over 11,337 sq. yds. and 9 bonded warehouses of over 7,229 sq. yds. Along the shore, a number of cranes of 1 to 10 tons and rails extending over 5 miles are provided.

The foregoing accommodation having been judged inadequate to meet the requirements of the rapidly-developing trade of this harbour, the Government again started in 1899 reclamation work and proceeded to provide quay accommodation for the mooring of a larger number of vessels, and to build more sheds and warehouses and make direct connections with the main railway lines of the Empire. In 1912, improvement work on the present pier has been entered upon.

The reclaimed ground covers an area of about 56 acres, surrounded with quay-walls and landing-stages. The effective length of the quay-walls is 5,673 ft., and the depth is from 20 ft. to 32 ft. below the lowest spring tide. The sheds in the reclaimed ground are 14 in number, covering an area of 50,308 sq. yds., and the warehouses are three-storied and 2 in number, covering 7,621 sq. yds. The rails laid are 9 miles long. 18 sets of 1.5—5 ton electric travelling cranes, and 1 set of 50 ton electric stationary crane, equipping the quay-walls, are operated through the generating-house built on the reclaimed ground. By improving the present pier, its width will be increased to 138 ft., and the water-depth of 35 ft. at the lowest spring tide will be made along either side; two two-storied sheds each covering 2,174 sq. yds. are to be constructed on the pier, the upper story being furnished for passengers' use, and the lower floor for cargoes; and the pier will be able to have two large steamers moored on each of its sides.

The whole of the reclamation work was completed in 1910. The equipments on the reclaimed ground were finished in 1914, and the improvement of the pier will be completed in March 1917, the total amount of expenditures being estimated at yen 10,484,000 (£1,073,850).

The dredging work was begun in 1890 and already about 800 acres, or nearly two-thirds of the water-area, have been dredged to the depth of from 20 to 35 feet below the lowest spring tide. It is continually being carried on to increase the dredged area and the water depth from 24 to 35 feet.

All these works are, however, judged still inadequate to cope with the steady expansion of foreign trade in this harbour, and both the Government and the general public agree in urging the necessity of starting further improvements. The railway lines on the western and northern shores of the port have already been greatly extended, with more freight terminus accommodations, and the construction of quay-walls for coast-trading vessels, the extension of the shore-lines of the Yokohama Railway Company and the Yokohama Warehouses Company, the reclamation of the foreshore outside the harbour which will be used for the sites of various factories, and the opening of a canal between Tokyo and Yokohama will be undertaken in course of time.

Kobe Harbour. The harbour is really an ideal one with many topographical advantages; but provided only with lighters' wharves, it absolutely lacked the modern equipments of a trade port in keeping with its commercial development. The Custom-house equipment in 1901 consisted of only 8 warehouses with an area of 2,911 square yards, 14 sheds with an area of 18,197 square yards, and 9 cranes ranging from 5 to 30 tons. In 1902, the Government constructed two small breakwaters in front of Onohama and the Imperial Government Railways built a branch line to connect with the harbour; but these were chiefly for the cenvenience of the lighters. It was not until 1906 that plans were made for

the construction of jetties and piers in the same harbour as a six-years' continued undertaking for the convenience of ocean steamers, and as accessory undertakings, several sheds and small piers were built at the Kawasaki wharf.

But as these works were mere makeshifts and inadequate for coping with the development of the trade of the port, new plans were made and works were commenced as undertakings to be completed in eleven years from 1907 for foreshore reclamation and land accommodation.

The new reclamation area will be 67.8 acres and there will be four moles whose quay walls will have a total effective length of 8,351 feet and a depth of from 30 to 36 feet at low tide. There will be also lighters' wharves, 1,787 feet long. Along the quays and wharves there will be 17 steel and two wooden sheds with a total area of 63,332 square yards. On the reclaimed land railway lines about twelve miles long will be built; and the quay will be fitted with 21 electric travelling cranes of from one to five tons and the wharves with five stationary hand cranes.

These works, which will cost yen 13,075,409 (£1,339,282), are expected to be completed in March, 1918.

The breakwaters which have been planned for the harbour by the Government will have a harbour-entrance 895 feet wide and 42 feet deep at low water and two side entrances; the total length of the breakwaters will be 15,211 feet, enclosing a water-area of 1,716 acres; and in 1910 the Government commenced the construction of a breakwater running 3,770 feet eastward from the side entrance above referred to in front of the Kawasaki Wharf, for the protection of the quay walls above mentioned; this breakwater will, it is believed, be completed in March, 1919 and cost yen 2,670,000 (£273,482).

About the same time as these equipments made by the Government, the Tokyo Warehouses Company began the construction of similar works at Wada and Takahama: at Wada the works begun in 1908 were an iron pier 600 feet long, 62 feet wide, and standing in water 26 feet deep at low tide, sea-walls on both sides of it with a total length of 1,842 feet, and sheds with a capacity of 26,722 square yards and warehouses with a capacity of 1,932 square yards, and 16 1½-ton cranes, and a railway of more than four miles; and at Takahama 13 acres were reclaimed, quay walls 1,704 feet long and with 27 feet of water, sheds of 17,491 square yards capacity and warehouses of 17,664 square yards and railway lines four and a half miles long, were constructed.

The private equipments in connection with the foreign trade of the port are, in addition to the above, the warehouses and sheds, aggregating 27,816 square yards, of the Kobe Pier Company at Onohama, and the warehouses and sheds of 13,248 square yards capacity of the Toshin Warehouses Company at Onohama and Higashide-machi. The latter Company has undertaken to reclaim about 8 acres in front of Onohama to construct a quay wall 1,020 ft. long and 30 ft. deep and to make necessary accommodations thereon.

TIN MINING AND SMELTING IN THE ORIENT

In reviewing the tin production of the world for the past few years, a report of the United States Department of Commerce gives the following particulars regarding the tin deposits of Federated Malay States and China, the latter country being the third in point of production.

The greatest tin-producing region in the world is in the Federated Malay States, a colony of the British Empire, which comprises the four Federated States of Perak, Selangor, Negri Sembilan, and Pahang, and the three native States of Kedah, Kelantan, and Trengganu, in the Malay Peninsula. These States have a total area of nearly 43,000 square miles. The Department of Commerce monograph by D. C. Alexander, Jr., on Mining in the Federated Malay States, contains some facts concerning the tin mining which may here be set down.

The tin is usually found in the form of cassiterite, an impure stannic oxide (SnO_2), and was undoubtedly originally deposited in the metamorphic granite of the mountains and hills of this region. Lodes of the ore are found in many places in the granite in the form of an onyx quartz, and the working of this quartz has been frequently undertaken. However, the quartz workings have seldom been successful, since the profit derived from them compares very unfavorably with what can be earned from even the low-grade alluvial deposits. It is generally held by mining engineers of this district that quartz workings will not become numerous or profitable until all but the very lowest grades of alluvial deposits have been exhausted, which will probably not be for another 25 or 30 years. Moreover, should large alluvial deposits of tin ore be found in the recently acquired Provinces of Kedah, Kelantan, and Trengganu, where prospectors are at work, the day of the quartz working will be further postponed.

On the other hand, there are a few quartz deposits so rich that thoroughly experienced miners have not hesitated to erect the expensive mills necessary for working them. One such plant is that of the Menglembu Lode Syndicate, near Ipoh. Another mill was erected recently near Bentong, Pahang. Moreover, the Government of the Federated Malay States agreed several years ago to a proposal of the Mine Owners' Association that reductions of not more than 50 per cent of the export duty on tin and tin ore should be granted to miners able to show that the properties which they are working are of so low a grade that a reasonable profit can not be earned if the full duty is exacted. This measure was expected to have the effect of encouraging quartz mining.

The alluvial deposits of tin ore are very widely scattered, but the richest are usually found lying close to the slopes of hills or mountains, narrow valleys being most productive. This is easily explained on the theory that the disintegrated granite which contains the tin was washed down the slopes by rains and streams, and the tin ore, because of its weight, remained in pockets close under the slopes, while the sand that accompanied it was carried to a greater distance. That the streams in the valleys carried away the granitic sand and continuously deposited silt is shown by the fact that the richest ore is found in beds of clay.

The famous and wonderfully rich Kinta Valley of Perak is an excellent example of the formation described. The valley is about 30 miles long, with an average width of 5 to 6 miles, and the hills on either side rise to an elevation of 300 to 400 feet. On the west side of the valley the granite of the hills slopes down until it meets the limestone floor, while on the east side of the valley the hills are flanked by cliffs of limestone outcrop. The Kinta, Sorakai, and several smaller streams flow through the valley. The richest ore deposits lie on the west side of the valley; but the east slope has what the west slope lacks—an abundant supply of water, by means of which the lower grades of ore can be profitably worked.

Smelting Plants in Straits Settlements—The Export Duty

The two plants that smelt most of the tin ore produced in the Federated Malay States are situated in Straits Settlements. It is said that over 80 per cent of the tin ore exported is smelted either in the smelter of the Straits Trading Co., at Singapore, or that of the Eastern Smelting Co., at Penang; these smelters also receive a small amount of ore from Australia and South Africa. Such of the Federated Malay States ore as is not smelted in the Straits Settlements goes to England, the following provision of the customs tariff making it impossible to ship the ore to other countries for smelting:

Export duty, tin ore, 70 per cent of the duty on tin, with, in the case of tin ore exported otherwise than under such guaranties as the Resident may require, that it shall be smelted in the Straits Settlements or United Kingdom, an additional duty of Straits $30 per picul ($285 United States currency per long ton).

The export duty on block tin, provided by the same tariff, is Straits $10 per bhara (400 pounds) when the price of tin does not exceed Straits $41 per picul; but when the price exceeds $41 per picul the duty per bhara is increased by $0.50 for every $1 by which the price of tin exceeds $41 per picul.

Exports During Recent Years

Accoring to a report submitted by American Vice Consul Caspar L. Dreier, at Singapore, the total export of tin from the Federated Malay States during 1914 amounted to 49,042 tons, as compared with 50,128 tons in the previous year and 48,250 tons in 1912. The war, this report states, had the effect of restricting somewhat the output of tin. The total decrease, compared with the preceding year, is given as 18,220 piculs (1 picul=133⅓ pounds), the decrease in value being $2,048,621 United States currency. Perak, as the largest producer, shows the largest decrease, this being 14,215 piculs, with a decrease in value of $1,225,820. The total output of tin during 1913 was 842,129 piculs, and during 1914, 823,909 piculs.

China is Third in Production.

Annual reports for 1914, give the exports of tin in slabs from the whole of China (excluding Hongkong, a British possession) during that year as 7,948 tons, of a value of $5,578,992, as compared with 9,245 tons, of a value of $8,094,886, during 1913. In 1914 there were no exports of tin to the United States from the ports of China other than Hongkong, and in 1913 such exports amounted to only $5,288.

China ranks next to the Federated Malay States and Bolivia in the production of tin. Nearly all the supply is brought from Yunnan to Hongkong, where it is refined and shipped to Europe and America or distributed to the Chinese market. The output of Yunnan is now hampered by limited water supply, difficulty of transport, and the high cost of fuel and food.

German interests have constructed a tin-refining plant at Ko-Chiu to turn out 50 tons of standard tin per day by coal-gas furnaces. It has never been fully worked, as all the coal has to be transported from Pi-Chi-Chai by mules, but as soon as the branch line is built coal will be plentiful, and if water can be had the output will probably exceed 50 tons per day, as at present (1913) without a refinery the output is over 30 tons per day from the native smelters, which turn out tin averaging 84 per cent pure, to be shipped to Hongkong for refining in native furnaces. Tin is found from the east side of the range, about 8 miles from Meng-tze, to the western bank of the Red River, an area 24 miles wide by about 56 miles long.

During 1913 the output of tin from the Yunnan mines was placed by the trade at about 14,000 tons, as compared with about 10,000 tons in 1912.

New tin mines in South China are to be developed in the new British territory, the Kowloon extension, according to Vice-Consul General A. E. Carleton, of Hongkong. Some 40 shafts have been sunk, and tin has been obtained from every one of them in quantities, it is claimed, that leaves no doubt of the remunerative nature of the enterprise; in fact, a Straits company is prepared to take any quantity of the unsmelted ore at about $735 per ton. It is proposed to operate the tin-bearing soil by dredges.

Exports from Hongkong

In 1914 Hongkong exported to the United States tin slabs to the value of $769,538, as compared with $1,632,213 in the preceding year, according to a report submitted by Consul General Anderson. The values of the 1911 and 1912 tin exports to this country were $798,941 and $1,404,115, respectively. The exports previous to 1911 were too small to merit separate enumeration in the returns.

Consul General Anderson says that exports of tin from Hongkong to all parts of the world fell off about one-third during 1914, as compared with the preceding year. The figures of the Hongkong General Chamber of Commerce indicate that the shipments of tin in slabs of 112 pounds each during the three most recent years for which statistics are available have been as follows:

Destination.	1912 *Slabs.*	1913 *Slabs.*	1914 *Slabs.*
United	27,551	36,790	24,699
Great Britain	24,752	8,047	5,644
Continental Europe	63,772	32,575	20,895
Total exports	116,075	77,412	51,238

It should be stated that these figures are to a certain extent misleading, in that a large portion of the tin consigned to Europe is consigned with the option of New York and is diverted to the United States while en route to Europe. These exports are credited to Europe but are really destined for the United States in the first place.

In China itself, Consul General Anderson reports, there is a decrease in the use of tin for ceremonial purposes that is reflected in the decreasing imports, while the increased sale of Chinese tin abroad, due to widening sales connections and increased demand, is more than taking up the large increase in production. The tin refined in Hongkong is almost entirely from the mines in Yunnan and Kwangsi Provinces in China. The refining business in Hongkong is controlled by a few firms who operate in connection with a combination of buyers working with Government interests in Yunnan in a way practically to control the output. The tin situation in Hongkong, Mr. Anderson says, can be controlled by these interests at any time, but export prices are fixed, of course, upon the basis of the world's markets.

Dutch East Indies—Australia—Other Countries

In the Dutch East Indies there are important tin deposits, chiefly on the islands of Banca and Billiton. Consul B. S. Rairden, at Batavia, Java, reports that the production of the Banca tin mines in 1914 amounted to 225,284 piculs (about 15,319 short tons). During the preceding year there were sold at public tender in Batavia 66,000 slabs of tin, each weighing 74.8 pounds, totaling 4,938,800 pounds, at an average of $0.4261 per pound.

Australia in 1914 exported $1,334,939 worth of tin, as compared with $3,262,594 in 1913. Some of the chief tin mines are in Queensland and the production in that State in some representative years since 1881 has been as follows: 1881, 3,456 tons; 1891, 2,236 tons; 1901, 1,661 tons; 1906, 4,823 tons; 1907, 5,140 tons; 1908, 4,825 tons; 1909, 3,326 tons; 1910, 2,953 tons; 1911, 3,091 tons; 1912, 3,230 tons; 1913, 3,197 tons.

In addition to the countries previously discussed, tin is found in Japan, Korea, Siam and British Burma but the production is comparatively insignificant.

CHINA'S LEATHER IMPORTS

The importation of leather and leather manufactures into China has steadily increased in recent years. Among the reasons for this were the purchases of new equipment for China's army, including boots, shoes, belts, etc.; the establishment of cotton, silk, and flour mills, which has created a demand for belting; and the adoption of the Western style of dress by many of the Chinese, with incidental purchases of shoes, trunks, bags, and other articles. Although a few tanneries have been established in the coast and principal cities, and, to some extent, in the interior (one of some importance in Szechwan Province), they have not been, thus far, very successfully operated. Various causes are responsible for this condition, poor business management and a lack of proper technical knowledge of the trade being predominant. There are indications that China will continue to have a great part of its leather needs supplied from abroad for some time.

The net imports of leather, and belting and leather manufactures into China for the years 1911-1914 were.

Articles	1911 $	1912 $	1913 $	1914 $
Leather	2,849,004	4,585,785	5,323,170	4,174,142
Manufactures	277,466	280,686	271,773	224,939
Belting	105,999	118,090	191,550	194,011
Total	3,232,469	4,984,561	5,786,493	4,593,092

The percentages of imports from various sources for 1913 and 1914 were:

Articles and sources	1913 *Per cent*	1914 *Per cent*
Leather:		
Hongkong	83.07	84.07
Japan	8.83	9.03
United States	1.67	1.17
Russia	1.48	2.08
Belgium	.88	.46
United Kingdom	.55	.55
Germany	.52	.45
Other countries	3.00	2.19
Leather manufactures:		
Japan	44.27	44.28
Hongkong	23.33	22.73
United Kingdom	12.50	12.23
Russia	11.73	15.34
United States	1.22	.93
Austria	1.65	2.37
Other countries	5.30	2.12
Machine belting:		
United Kingdom	51.93	50.51
Japan	21.62	19.91
Germany	11.62	10.70
Hongkong	4.41	5.60
United States	2.98	4.50
Russia	3.29	5.63
France	3.21	.14
Belgium	.34	2.63
Other countries	.60	.38

A large proportion of the leather imported into China is transshipped at Hongkong, and it is therefore impossible to ascertain its origin from the Chinese maritime customs statistics. Undoubtedly the greater part of it comes from Singapore, and the remainder from various European countries. Japan's share of the trade is also very large, particularly in leather manufactures. Its proximity to China, the low cost of production, and the opportunity for prompt deliveries are largely responsible for this condition.

The imports of leather and articles of leather manufacture into Shanghai, for 1914, were; Calf, kid and colored, $76,861; cow, American and European, $2,433; cow, Hongkong and Straits Settlements, $220,151; cow, Japanese, $53; enameled, japanned, and patent, $10,273; harness, $28,517; sole, $61,900; others, $13,-390; chamois, $1,420; total value, $414,998.

There has been considerable trade in boots and shoes. China imported, in 1914, 227,174 pairs, valued at $392,819. Of this amount 65.8 per cent came from Russia, 11.21 per cent from Japan, 7.55 per cent from the United Kingdom, 7.46 per cent from the United States, and 4.2 per cent from Hongkong.

Three tanneries are established in Shanghai, operating with but moderate success. The principal one is controlled and operated under foreign supervision; the others are managed and capitalized by Chinese and Japanese, respectively. The manager of the foreign-controlled tannery frankly admits that it has not had a successful year, chiefly on account of the difficulty of obtaining tanning extracts, which heretofore had been mostly supplied from France and Italy.

There is little demand for harness leather. This was supplied before the war largely by Great Britain, at $0.48, United States currency, per pound. It is claimed that American harness leather is not suitable for use here, being too hard.

Shipments from United States Curtailed

Some years ago American leather was largely shipped into China, but the Japanese gradually displaced it to a large extent, though it is claimed that a fair percentage of the leather which Japan sends here was originally exported from the United States. This particularly applies to leather of superior quality. It is understood that shipments of American leather to China have been curtailed through the following causes: (1) The lack of representatives in this market; (2) not sending samples, which the Chinese invariably demand; and (3) the high price of American leather.

There is at present an opportunity for American leather manufacturers to canvass this market, chiefly on account of the elimination of certain supplies from Europe. The lack of shipping facilities and advanced tonnage rates are troublesome obstacles to be overcome.

THE NORTH CHINA DESK HONG LIST

The North China Desk Hong List for 1916 which has just been issued from the Press of the North China Daily News and Herald, Shanghai, has continued to improve in the 1916 edition as in former years, by a more comprehensive covering of its territory and the inclusion of many hundreds of names that might have been overlooked in less accurate canvasses. Beside the business lists of Shanghai, Hankow, Tientsin, Peking and all the outports of the coast and in the Yangtsze Valley, the Hong List has also gone over into Manchuria to compile lists from Antung, Changchun, Harbin and other cities. Aside from its service to the business man, a feature of the Shanghai section of the directory is a list of residences according to streets and the alphabetical residential directory instituted last year. The practice of listing Railroads in a separate section with names of their officers, has been followed again this year and is a great convenience.

The directory of missionaries has been further subdivided according to religious groups, Protestant missions and Roman Catholic missions being segregated, and the list has been much enlarged by the inclusion of the many small mission centres which had been overlooked in previous issues. Taken as a whole and in connection with its lists of residences in the out-ports, the 1916 Hong List furnishes a speedy method of locating any foreigner even though the address be so vague as merely China.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

The Canton-Hankow Railway.—Construction work on the Canton-Hankow railway has continued despite the war, though the great conflict will cause a suspension of activity before long owing to the exhaustion of finances. It will be impossible to push on to completion the section from Wuchang to the border of Kwangtung province, where it is to join with the section being constructed from Canton northwards, but connexion will at all events be made between Wuchang and Changsha, the capital of Hunan Province, a distance of some 225 miles. This link is expected to be forged by the end of this year at latest, with the exception of a few bridges where ferries will have to be used. Bridging is going to prove difficult even under most favourable conditions of finance and purchase of materials, the rise of water from navigable low water to flood height being some forty feet, and thus necessitating extremely high structures.

Already thirty-five miles of rails have been laid south from Wuchang (or Hsu-chia-pang, where the workshops are on the Yangtsze, five miles from Wuchang) and construction trains will shortly operate until a regular service can be introduced. By the end of March it is expected that 52 miles of line will be completed.

Peking-Jehol Railway.—As the Peking-Jehol line is important strategically to link up railway communication between the interior of China and Mongolia the Government according to Chinese press reports, has despatched engineers to make a complete survey of the line, whose estimated cost is approximately $12,000,000. The programme of construction is as follows:—The work to start not later than in June, 1916; the whole line to be completed in three years. The line is to be divided into three sections—(1) from Peking via Shunyi to Miyun, (2) from Miyun to Kupeikou, (3) from Kupeikou via Luanping to Jehol. The construction cost is to be defrayed from the surplus funds of the Peking-Mukden and the Peking-Hankow railways, in three yearly instalments, viz: $4,000,000 for the first, $3,000,000 for the second, and $5,000,000 for the third year.

Mr. Chang Pei-chun, of the Communications Ministry, Peking, accompanied by Mr. Ying-jui, of the Board for Mongolian and Thibetan Affairs, and a number of railway engineers, visited Mukden early in March. After consulting with the Mukden Government authorities, they started northward to survey the proposed route via Jehol and Chihfeng.

Hangchow-Hweichow Project. — Efforts are again being made to revive the project to build the extension from Hangchow to Kuangteh and Hweichow in Anhui Province which has already been surveyed. The Chekiang and Anhui promoters of the line, according to the *North-China Daily News*, have appointed a representative to talk the matter over with the Shanghai-Hangchow-Nanking Railway officials. When this railway is built, it will bring Mokanshan summer resort within a few hours of Shanghai and may pass near enough to the Shanghai Municipal Pingchiao quarry to transport the stone to Hangchow and Shanghai. Attempts will be made to induce the Government to hasten the building of this line.

Chefoo-Weihsien Railway.—Telegraphic advices from Tsinan say that arrangements have been made for raising the capital required for the construction of a railway between Chefoo and Weihsien and that work will be started in May, according to an announcement made by the Chinese. The cost of the line has been estimated at $10,000,000. Recently, the ministry has advised the Chefoo chamber of commerce that of the estimated cost, $1,000,000 shall be borne by the general chamber of commerce in Chefoo, $1,000,000 by the proposed railway, $2,000,000 by the province of Shantung, $2,800,000 by other provinces, totalling $6,000,000. The remainder of $3,200,000 will be financed by the ministry of communications.

New Amur Railway Facilities. — The Transbaikal railway authorities announce the running of one through train over the new Amur Railway through Blagovestchensk direct to Haborovsk from May 1. Passengers will be able to reach Vladivostok from towns in Russia without having to pass through Manchuria. The putting together of the new 30-ton American freight cars is progressing satisfactorily in Vladivostok so that the car famine soon will be over.

Kaifeng-Honan Line.—Railway construction westward is proceeding apace. Old bridges are replaced. In a short time trains will run both day and night between Hsuchow and Kuanint'ang west of Mienchi. This is a 35 stage run. Beyond Kuanint'ang are the long tunnels, and it will be two years before trains can go further. At present travellers stop at Kaifeng over night, but in a short time the train will go through direct. The limited supply of rolling stock now available is taxed to its utmost. The trains are so packed that often sitting room is out of the question, even the platforms between the carriages being thronged. The train passes by intermediate stations as there is no further room for the accommodation of travellers.

Broad Gauge in Japan.—A Japanese news agency states that the sum necessary to rebuild the railway as a broad gauge between Tokio and Shimonoseki is Yen 254,000,000 while the estimate for the repairs of the line is Yen 238,000,000. Therefore the Imperial Board of Railways of Japan has decided to effect the rebuilding of the line as a broad gauge railway and is waiting only the sanction of the government.

Yokohama Elevated Progresses.—Construction work on the elevated line of the government railway between Yokohama and Sakuragi-cho stations, which was started immediately after the new year, has been making rapid progress. The concrete foundation work for three bridges is nearly completed. The old Yokohama station will be reconstructed for the new line.

S. M. R. Traffic Returns.—The South Manchuria Railway Traffic Returns for February totalled Y1,915,304.89, a daily average of Y66,045, being a decrease of Y635,002.62 for the whole month and Y25,037.41 per day, as compared with February 1915. The total Traffic Receipts of the fiscal year to February 29th amounted to Y22,248,345.27, and the net increase over the corresponding term of the preceding fiscal year increased to Y532,409.07.

Federated Malay States Railways.—The extension of the Federated Malay States railway system towards Bangkok, has resulted in the opening of traffic from Prai to Alor Star a distance of 56 miles 18 chains. The position of the rail head now is the 84th mile and the earthwork is completed up to the 90th mile. A further extension of the railway it is expected will be open to traffic in January 1917 to Aro Station at the 80th mile. It is estimated that the F. M. S. section of the Bangkok extension will be completed about the middle of 1917, the distance to boundary station of Siam being 98 miles. The staking out of the Siamese section, Ootapao to Perlis boundary, was completed some months ago in continuation of the F.M.S. section, Alor Star to Perlis-Siamese boundary, and it is understood good progress has been made with the construction throughout. The junction station on the boundary is at Padang Besar, and it is anticipated that through communication between Prai and Bangkok will be established for passenger and goods traffic some time in the latter half of 1917. The passenger and goods traffic to and from Prai and Alor Star has come up to the Railway authorities' anticipations for the period during which the line has been open and the train service will have to be increased as soon as additional locomotives and carriages are obtainable from home. The new line is paying remarkably well, not only 3rd class carriages being fully taken advantage of, but the 1st class also often are full.

It has been decided that the extensions at Prai should be left to the F.M.S. Railways, as the government was unable to finance them sufficiently to make Prai a successful port. The remodelling of Prai passenger station is well in hand, and the doubling of the line from Bukit Mertajam to Prai completed. Plans for remodelling the goods yard and extending the wharfage accommodation have been submitted to the Consulting Engineers in London, and their report is now under consideration. It is hoped to provide wharfage for ocean-going traffic as the future of Penang is largely bound up in the proper development of Prai and the neighbouring foreshore, which should eventually become to Penang in a smaller way what Kowloon has become to Hongkong. Prai cannot help becoming an important centre of trade as the Peninsula develops, and the more facilities provided for the economical handling of a large trade the greater the gain of the port will be.

Philippine Railroad Project.—The Philippine Legislature has conferred a franchise for the construction of a railroad in the island of Negros, to do a general transportation business, but more particularly to improve the facilities for handling the sugar output of this the most important cane-growing district in the islands; and incorporation papers have now been taken out for a company to undertake the construction of the road. The incorporators are all Filipinos, the first project of the kind in which this has been the case.

The name of the company is the "Ferrocarril Agricola Pulupangdan-Isabela;" that is, the Pulupangdan & Isabela Agricultural Railway Co. The line is to run between these two places, the former of which is on the seacoast and is a somewhat important point for shipping sugar to Iloilo, while the latter is the center of one of the richest sugar-producing

districts of the Province of Occidental Negros. They are about 40 miles apart.

The road is to pass through the towns of La Carlota, La Rama, Zaragoza, La Granja, Danao, and Castellana, all of which, and especially La Carlota and La Granja, are of importance for their sugar product; and authority has been secured to construct such feeder lines as may be necessary. The district thus tapped has an estimated population of 110,000, and it is computed that it should at present yield 70,000 tons of freight a year, and probably more as the sugar acreage is extended.

The company is also authorized to operate boats for handling sugar shipments from any port in Negros to Iloilo, which, though not on the island of Negros, is a port of entry and the center of the Negros sugar trade.

The authorized capital of the new company is 500,000 pesos ($250,000), divided into 2,500 shares of 200 pesos, ($100 each). Of this amount 20 per cent has already been subscribed by the incorporators, and 25,000 pesos ($12,500), or 5 per cent, has been paid up. The head offices will be for the present in Iloilo.

SHIPPING

New U. S. Ship Line to Orient.—A telegram from New York has been received at Shanghai to the effect that a new steamship company has been organized with a capital of $5,000,000, U.S. Currency. Fourteen ships have been purchased and it is the intention of the new company to operate on both the Atlantic and Pacific Oceans. These ships will fly the American flag.

New Dollar Steamer Strathardle.—Capt. Robert Dollar, Head of the Dollar Steamship Co., has just purchased the British steamer Strathardle from Messrs. Burrel and Sons, Glasgow, and will bring the vessel out to Shanghai shortly to operate a trans-Pacific service between Vancouver and the Orient. The Strathardle is of 2,829 tons net and was built in Dumbarton in 1910.

The above vessel will be successor to the Company's Robert Dollar, 5,356 tons gross, which, according to a report, has recently been sold, (the new Japanese owner says, for Y.280,000; actual sale price is stated in Shanghai shipping circles at Gold $1,000,000) for delivery in April next at Vladivostok.

T. K. K. Plans Big Ships.—Directors of the Toyo Kisen Kaisha have voted $18,550,000 for a shipbuilding yard and seven new transpacific steamers, of which two will be the largest and finest passenger ships on the Pacific, having a displacement of 25,000 tons each and a passenger capacity of 1,000. They will be of the *Manchuria* and *Mongolia* type, recently sold by the Pacific Mail Co., and will run from Japan via Hongkong to San Francisco. The company's new shipyard will build all of the steamers and will be located either at Yokohama or at Shimonoseki. The five smaller steamers will be of 10,000 tons each and will operate in the San Francisco, South American, Orient trade of the company. Bonds for the entire enterprise will be issued in Japan.

The difficulty that confronted this company for a long time was the payment of its debt. The amount of debt of the company was 7,630,000 yen in all last year, and of this 1,750,000 has been paid. It is quite possible that 2,000,000 yen or 2,500,000 yen of debt will be redeemed within the next six months and practically all of the debt will be cleared off at the end of this year. If these expectations are realized the company will have property valued at 40,000,000 yen, with a paid up capital of only 9,750,000 yen, the prospect of a fair profit and no debt.

Refloating the P. & O. Nile.—The Mitsu Bishi Dockyard is engaged in recovering Y.3,000,000 from the sea in the shape of the P. & O. S. Nile which sank off Iwaijima, Suho province, in the Inland Sea. The water at this spot is 30 fathoms. Mr. Yamashina Reizo bought the ship, as she lay, for Y.9,000. He succeeded in recovering about 800 bales of Shanghai cotton and sold the steamer to the Mitsu Bishi Dockyard for Y.13,000. The Dockyard is said to have expended Y.350,000 on preliminaries to the work, but expected to make Y.3,000,000 at the present high prices of steamers. Several ship owners and brokers are bidding for the vessel, offering up to 1,600,000 yen. The company is working hard day and night with twenty-five salvage vessels to refloat the sunken vessel.

Japanese Tramp Steamers.—The latest statistics give the number of Japanese tramp steamers as 238 with aggregate gross tonnage of 559,537, including 94 of 257,542 tons engaged in ocean-going services as follows:—

	No.	Tons
Chartered to Japanese...........	50	147,322
„ „ Foreigners.........	36	125,564
Employed on Shipowners' account............................	8	24,556

Japan's New Shipbuilding Yard.—It is reported that the shipbuilding yard promoted by Mr. Soichiro Asano and other business men is to be established in the compound of the Yokohama Dockyard Company as a joint undertaking between the dockyard company and Mr. Asano and others. Of the capital of the proposed undertaking which is fixed at 4,000,000 yen some 70 per cent will be taken by Mr. Asano and other business men and 30 per cent by the Yokohama Dockyard Company.

Formosa South Sea Line.—The Osaka Shosen Kaisha will open a new line to the South Sea Islands, starting from Keelung, Formosa. They will receive a subsidy of 100,000 yen from the Formosan government. Two vessels, the Kim Maru, 3,284 tons, and the Neshu Maru, 3,376 tons, are selected for service on the new line. The first vessel will leave Keelung April 1 and after calling at Amoy, Swatow, Hongkong, Singapore, Java, Celebes, Borneo and Manila will return to Keelung.

Japan Sells Russia Warships.—The Japanese papers now say that the three Japanese warships Tamba, Soya and Sagami, which were reported to have been sold to the Russian government, will be delivered to the Russian navy at Vladivostok some time toward the end of this month. These vessels were captured in the Russo-Japanese war and the sale price is said to be upwards of 10,000,000 yen.

Philippine Owners Selling Ships.—Although the attorney general has ruled, in a decision, that local shipowners are liable to a fine of not more than P25,000 for sellin-, leasing, or otherwise disposing of vessels owned by them and operated in the interisland trade, when such sale, lease, or disposal will deprive the people here of their services as common carriers, the government has no intention of initiating prosecutions. Six large steamers already have been taken from the Island runs.

Dutch Liners to Philippines.—Because of the great demand for freight space out of Manila, the Java Pacific Lyn has ordered another steamer to call at Manila. The Tjimanoek will arrive about the first of April and will be dispatched for San Francisco via Hongkong and Nagasaki about the fourth.

TRADE AND COMMERCE

India's Wheat Exports Decrease.—Exports of wheat from India show a decided falling off for the second time in two years from the crop of 1913-14, and the probability is that the 1915-16 output for the overseas trade will be less than 700,000 tons. Last year the complete figures showed exports of 705,000 tons, a decrease of 500,000 tons from the year before. Up to January, exports of the present crop were only 650,000 tons and as the bulk of the crop already had been shipped at the end of September, the last few months have shown negligible quantities exported, indicating that the market has been swept bare. The banner year for Indian wheat was 1912-13 when 1,660,000 tons were shipped. The bulk of this year's crop went to Great Britain including 533,400 tons valued at R 68,900,000 bought by the Government.

India's Crop Forecasts.—The following is a summary of the various crop forecasts relating to the season 1915-16 issued by the Department of Statistics, India, and published in the *Indian Trade Journal* on the dates mentioned in the last column:—

Crop.	Estimated Area.	Per cent of preceding year.	Estimated outturn.	Date of publication
	Acres			
Sugar-cane.	2,375,000	103	2,636,000 tons.	March 3, 1916
Sesamum.	5,185,000	94	480,000 tons.	Jan 28, 1916
Cotton.	17,967,000	73	3,819,000 bales	March 3, 1916.
Indigo.	314,300	212	39,900 cwts.	Dec. 31, 1915.
Rice.	76,792,000	100	32,877,000 tons.	March 3, 1916.
Groundnut.	1,935,000	80	1,011,000 tons.	Feby. 25, 1916.
Wheat	28,244,000	88	...	Jan. 7, 1916.
Rape and Mustard.	3,560,400	55	...	Jan. 7, 1916.
Linseed.	2,705,700	81	...	Jan. 7, 1916.

London Hemp Market.—At the auctions held in London on January 26, Indian hemps received by far the most attention. Demand was brisk for these, and the market ruled strong with high prices realised, while in the case of Manila grades practically the whole of the offerings were withdrawn, but where business resulted steady prices were paid. Of 2,893 bales of East Indians offered 1,450 bales sold, and fine dressed changed hands on the basis of £48 to £49, while of 1,205 bales of Manila offered only eight bales were disposed of.

France's Silk Production.—The following figures, published in the *Journal Officiel*, show a notable decrease in the production of raw silk in France since the out-break of the war:—

	1913.	1914.	1915.
Total number of silkworm rearers	90,517	83,825	43,327
Quantity of "seed" (eggs) incubated, in ounces of 25 grams each .	125,678	108,943	49,182
Production of cocoons (unstoved) in kilogrammes	4,423,046	5,067,392	1,727,326
Value in francs	15,655,016	19,908,930	4,243,027

It must be observed that the French silk harvest of 1914 was completed at least a month before war was declared.

Calcutta's Hide Exports.—The statement below shows the quantity (pieces) of raw cow-hides exported from Calcutta to the United Kingdom, the Continent, and America from 1912 to 1915:—

	To United Kingdom.	To Continent.	To America.	Total Hides.
1915	408,603	4,192,949	1,322,216	5,923,768
1914	154,211	5,676,395	343,096	6,173,702
1913	17,530	6,981,947	261,060	7,260,537
1912	39,583	7,812,626	801,221	8,653,430

The sales effected by public auction at London during 1915 have been 50,584 hides, against 1,075 in 1914 and *nil* in 1913.—*Indian Trade Journal.*

World's Rubber Yield.—The following estimate of the world's production and distribution of rubber (in tons) during 1915, pending the receipt of further official figures, as published in the *World's Rubber Position*:—

Production:—Plantation, 106,136; Brazilian, 37,220; Rest (including Central American, African and Mexican), 16,625; a total of 159,981 tons.

Distribution:—America, 97,000; United Kingdom, 17,981; Russia, 13,000; France, 11,000; Italy etc., 7,000; Canada, 3,600; Japan and Australia, 2,000; Scandinavia, 2,400; Germany, Austria-Hungary, etc., 6,000. The world's production of rubber for 1916 is estimated at 194,000 tons—comprising of plantation 140,000, Brazil 37,000 and the rest (including Central American, African and Mexican) 17,000 tons—the percentage increase over last year being 21.2.

Siam's Trade for 1915.—According to a report by Mr. H. Fitzmaurice, the British Vice-Consul of Bangkok in the Board of Trade Journal, the outlook for trade with Siam is promising.

Exports of rice were very heavy, and this, following on the record year 1913-14, should, under normal circumstances, have re-acted favourably on the import trade. Owing, however, to the war in Europe, all anticipations were upset.

At the outbreak of the war there was naturally great nervousness as to the financial effect it might have, especially as it followed so closely on the local financial troubles experienced at the end of 1913 and beginning of 1914. For a time all confidence in the bazaar was shattered, and not only were importers afraid to deliver goods and take fresh orders, but a great many native buyers were disinclined to give new orders. The importers quickly realised, however, that to avoid catastrophe it was necessary to continue credit business, and this was generally done, with the result that confidence was restored fairly rapidly.

As indicated, orders and shipments were greatly curtailed for a time and imports of bazaar goods, more particularly cotton goods, suffered accordingly. Despite these reduced imports, however, at no time since the war started has there been anything approaching a shortage in stock of cotton goods.

This was no doubt due to the large stocks held both by European importers and in the bazaar when the war broke out. Until recently, dealers have shown an increasing tendency to order liberally, especially in piece-goods, but unless new crop prospects improve before long a dull market is likely to be experienced, and the bazaar may suffer in consequence. The colour difficulty (due to the shortage of supplies of aniline dyes) is likely to be of great importance, and there is increasing difficulty in securing many lines of coloured goods.

One result of the war will be to create healthier trade conditions than have been the rule for some years past. Enemy countries will no doubt make great efforts to regain lost trade, but it seems likely that they will not be financially capable after the war of extending credits in their former liberal manner.

It may be mentioned that many lines of British goods are at present only obtainable at very high prices, while all European goods are considerably affected by the high rates of freight now ruling, and both imports and exports at Bangkok will be bound to be adversely affected in consequence. The high prices that now have to be paid for most metals may also influence seriously the volume of imports in 1915-16.

FINANCE

Philippine Agricultural Bank.—As the recently enacted law which makes provision for establishment of a national bank contemplates absorption by that institution of the present agricultural bank, the affairs of the latter furnish a subject of more than passing interest. The following figures are of recent date and give a comprehensive idea in brief form of the status of the agricultural bank:—

Loans outstanding to date... ...	P5,240,710.00
Loans authorized to date and not yet paid	346,650.00
	P5,587,360.00
Average for last five years P7,347,300.00—50% allowed ...	P3,673,650.00
Capital	1,000,000.00
Net profit December 31, 1915 ...	869,269.73
48/90 of profit last quarter, P83,218.66	44,383.28
	P5,587,303.01

It is understood that applications for loans amounting to in the neighborhood of P1,000,000 have been passed on but not authorized, as there are no funds available to make them. The above figures show that on the date this statement was prepared loans amounting to P346,650 had been authorized but not actually made, for the reason, doubtless, that cash was not immediately available for the purpose. The average deposits are shown to amount to P7,347,000, of which 50% may be invested in real estate mortgages. In addition, the capital and profit accumulations are also available for the purpose. As the assets are to be taken over by the new institution, the regulations governing the national bank will naturally modify the provisions under which the agricultural bank has operated.

MINING

Japan's Foundry Enlarging.—The Japanese Government plan to enlarge the scope of the Steel Foundry in Kyushu with a fund of Y.87,000,000, the work to be spread over five consecutive years, has been sanctioned by the Diet. Mr. Kataoka, chairman of the Budget Committee of the House, announced that the committee had adopted the bill in its original form. Mr. Chuzo Mizuchi, of the Seiyukai, asked about the proceeds from the iron foundry after the proposed expansion. Mr. Kono, Minister of Agriculture and Commerce, said it would be about 5,000,000 yen annually. Mr. Shoichiro Yoshiuye, of the same party, said he had no objection to any expansion of the government foundry. He was however dissatisfied with the proposed expansion which he feared would fail to meet the increasing demands for iron in this country. Although the government foundry, according to the government's plan, would be able to produce iron materials of 600,000 tons annually when the proposed scheme is completed six years hence, yet the demands for iron would increase to more than 2,000,000 tons annually by that time. He asked why the government did not encourage individual capitalists to undertake iron foundry business at this opportune moment. He charged the government with having no fixed policy for this purpose; it was simply thinking how to increase the income of the Imperial Government Iron Foundry, even at the expense of private concerns.

Plan New Steel Works.—Another plan for the augmentation of steel supplies is reported to be afoot among the proprietors of the Kamaishi Iron Mine in Japan. The chief expert of the mine is collecting machinery for the extension of the old plant, in which the proprietors will place Y5,000,000 more. The addition will be built and in full operation by June.

The annual production of the mine when the whole plant is in operation is estimated at 120,000 tons of pig iron and 80,000 tons of steel.

F.M.S. Tin Exports.—The following is a statement of block tin ore exported, approximate value in Singapore, during the year 1915 compared with corresponding period of previous year.

	Block Tin. 1915	Block Tin. 1914	Tin Ore (70 per cent. of gross weight) 1915	Tin Ore (70 per cent. of gross weight) 1914
	*piculs		piculs	
Total...	73,404	61,179	711,097	762,730

	Total Tin 1915	Total Tin 1914	Decrease
	piculs	piculs	piculs
Total ...	784,502	823,909	39,406

State	Singapore Value 1915	Singapore Value 1914	Increase
Total	$61,318,593.27	$60,690,610.15	$627,983.12

*Piculs of 133⅓ pounds. Straits Dollar=57 cents gold.

Manila May Reopen Quarry.—In order to look into the proposed project of reopening the city quarries at Talim Island, members of the municipal board made an inspection trip to the quarries formerly operated by the city. Member de los Reyes stated that the present contractor has already collected P204,000 for stone and that 62,000 cubic meters of this material was now piled up so that the city would not have to purchase stone for some years. It is estimated that P12,000 to P13,000 will be required to put the machines at the quarry in working order again, apart from the money necessary to put the boats for transportation purposes into service.

Seoul Mining Co.'s Report.—The following results were obtained by the Seoul Mining Co. from the Suan and Tul Mi Chung Mines operations for the month of February, 1916.—

Tons Crushed	14,420 tons.
Value Bullion Recovered.........	Yen 126,205.00
Value Concentrates Recovered.	115,963.00
Total Receipts (approx.) ...	Yen 242,168.00
Operating Expenses (approx.)	110,000.00
Operating Earnings (approx.)	Yen 132,168.00

Many Mines in China.—According to an estimate it is said that there are at present no fewer than 4,049 mines which are now being operated throughout the country, covering a total area of 11,310,052 mou of land. There are said to be 7,561 "officers and engineers" and 122,459 common labourers employed in these mines.—*Peking Gazette.*

THE FAR EASTERN REVIEW

COMMERCE :-: ENGINEERING :-: FINANCE

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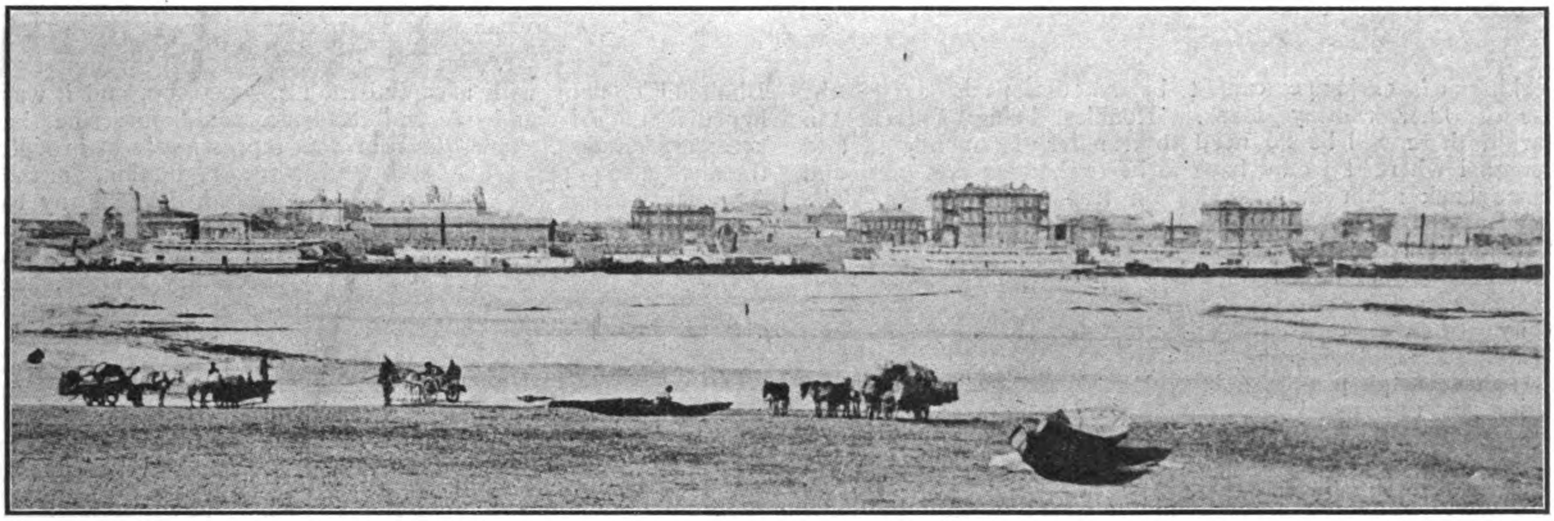


BLAGOVESHCHENSK ON THE AMUR SEEN FROM PROPOSED NORTHERN TERMINAL OF NEW RUSSIAN RAILWAY

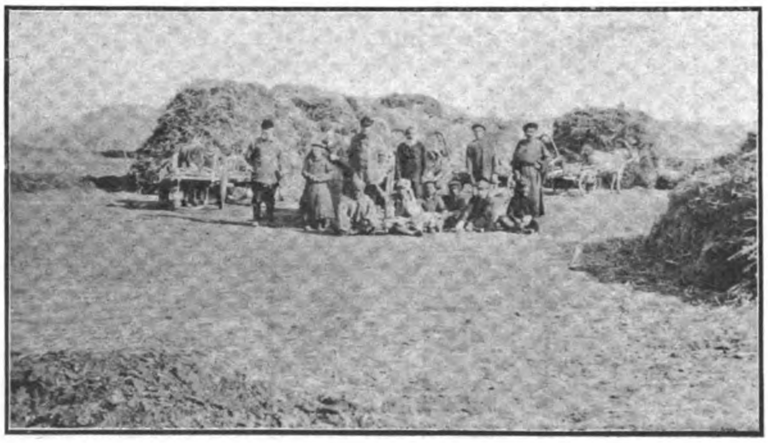
NEW RAILWAYS IN NORTH MANCHURIA

Russia Consolidates Her Position

An important agreement was signed in Peking on March 27 last between the Russo-Asiatic Bank, represented by Mr. L. de Hoyer, and the Chinese Government, represented by Mr. Liang Tung-yen, the Minister of Communications, and Mr. Chou Hsu-shih, Minister of Finance, for the construction of a railway connecting the cities of Harbin, Mergen, Aigun, and Tsitsihar, in Northern Manchuria.

As is well known Harbin is an important city at the junction of the Siberian Railway and the line running south to Changchun and thence to Dalny, while Tsitsihar is connected with the Siberian Railway by a light line which will be taken over under the agreement just signed. Mergen is a little more than half way between Tsitsihar and Aigun, which is on the Amur River. North of Aigun, on the opposite side of the Amur, is the city of Blagoveshchensk, which the new railway is destined to serve. Connection will be made by means of ferry boats with what is now the village of Heiheifu, opposite Blagoveshchensk, where the railway will terminate.

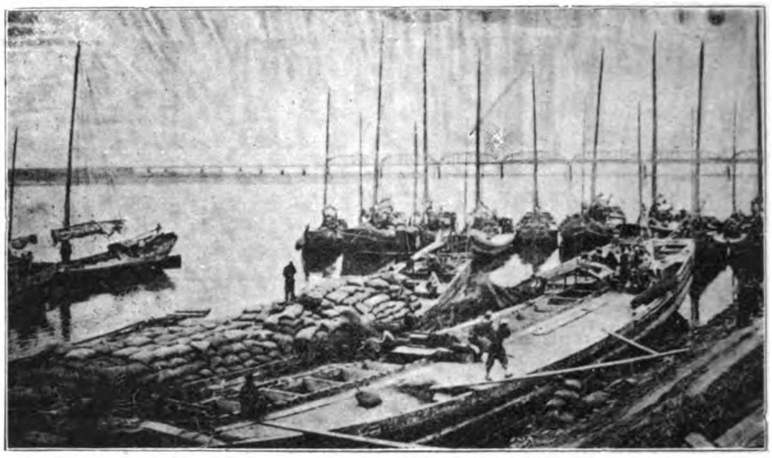
The total length of the proposed railway is approximately 1,000 kilometres. It will link up the Siberian railway with the Amur River, and will consolidate Russian interests, and incidentally develop great areas of valuable territory, in North Manchuria. An interesting point is that it will cover the northern section of what is known as the Chinchow-Aigun project, the agreement for which is held by the American Group of Bankers, but which was rendered void by the energetic protests of Japan that the proposed line would parallel the South Manchuria Railway.



RUSSIAN FARM IN NORTH MANCHURIA

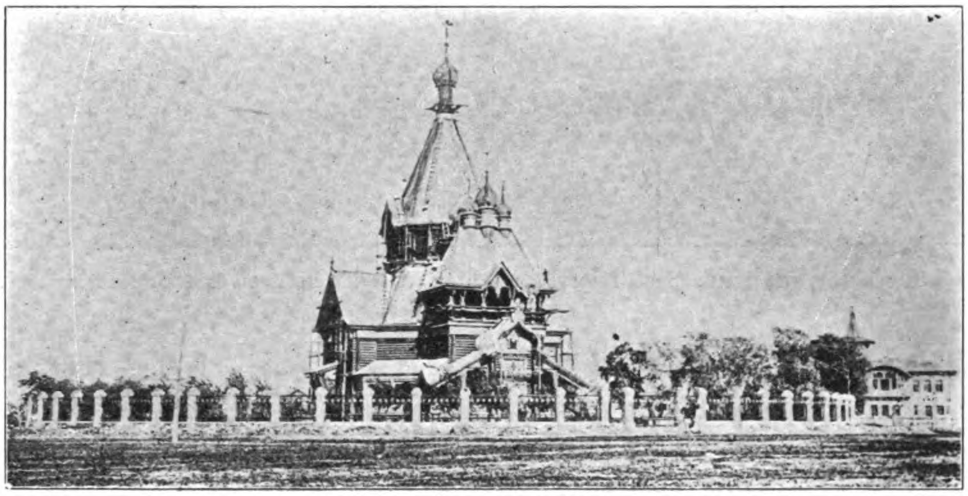
The agreement is for a loan of fifty million Roubles, and any additional amount which might be required to complete the project, the loan to be floated when financial conditions may permit after the war, and in whatever markets the Russo-Asiatic Bank may deem money to be available. The agreement is regarded as an improvement on other railway agreements in China where the interests of the financiers are concerned with control of expenditure, etc., while the Chinese Government gains a distinct pecuniary advantage owing to an arrangement being made whereby the

River Barges in Sungari Near Harbin



Manchurian Grain Boats Near Harbin

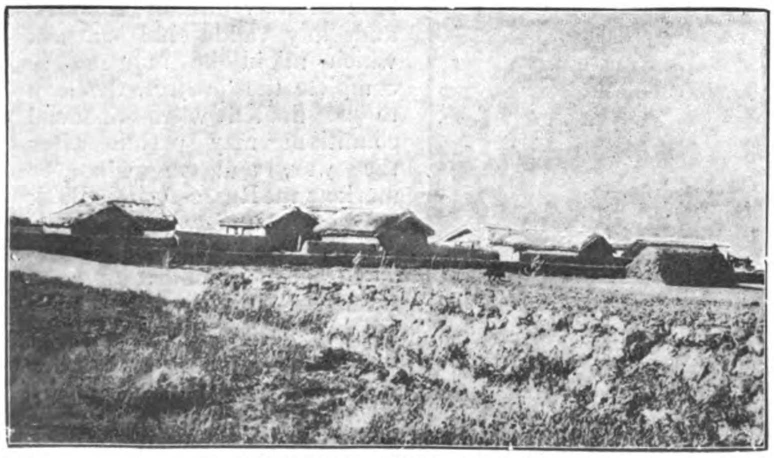
working of exchange cannot be so disastrous as in the case of other railway loans. Roubles being current in Harbin there will be no need to transfer the money first to Shanghai where it would have to be exchanged into sycee and thence back again into roubles on transfer to Harbin. The whole of the capital as required will be sent direct from Russia to Harbin, the Chinese Government gaining advantage by the simplicity of the procedure. The bondholders receive ample protection in the usual way by having the line, etc., as security, by the employment of qualified Engineers and Accountants, etc., and in addition by the arrangement that the earnings of the railway shall be deposited in branches of the Russo-Asiatic Bank.



Russian Church in Harbin

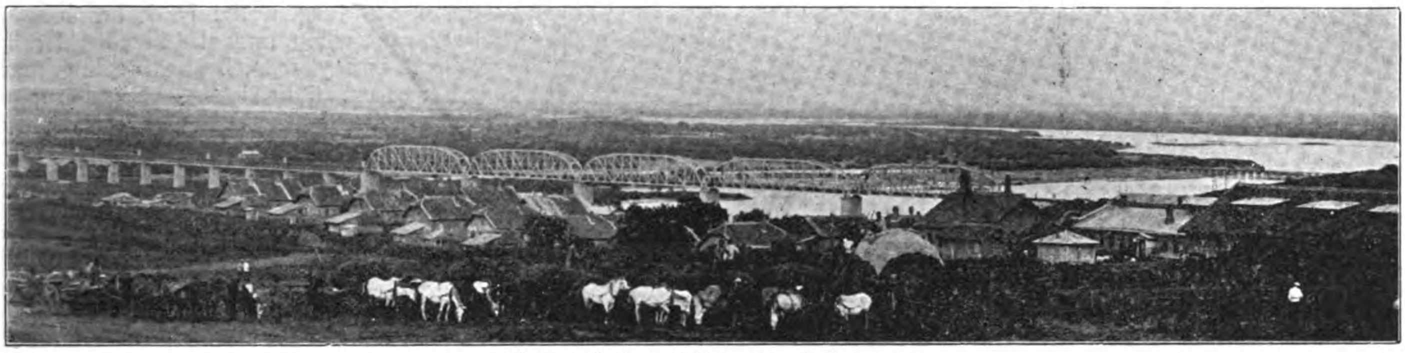
The idea of building a railway from Harbin to Aigun has long been entertained by the Chinese authorities in the Province of Heilungchiang (or Tsitsihar) as well as by the commercial people in Aigun, Mergen, Harbin and other centres in Northern Manchuria. In April, 1910, the Provincial Assembly of Heilungchiang drafted a scheme, which was approved by the Governor of Tsitsihar, for the building of a line from Harbin to Heilunfu (or Tunkan, as it is called in Russian) which lies some 210 kilometres northwest of Harbin. It was intended to form a Limited Company with a capital of Tls. 3,000,000, and it was hoped that local merchants and residents would subscribe the necessary amount. The Governor sent representatives through the district to popularise the idea, and in 1911 regulations for the foundation of such a company were published, the company to be called the Lan-Har Railway Company. Engineers were instructed to make the necessary surveys, but up to the end of 1912 an amount not exceeding $100,000 was all that was raised by private subscription, though the Peking Government was induced to promise a subsidy of Tls. 1,000,000 without interest.

In 1913 the question was again brought before the Provincial Assembly of Tsitsihar, some members being energetic and sanguine in their advocacy of the scheme. In their speeches they particularly emphasised two points, one that if the Chinese built the railway themselves foreigners would thus be prevented from asking for the right to construct it, and another that the railway would facilitate the movement of troops and thus serve to check the raiding Hunghutzes, or brigands, who were often used as a pretext by foreigners to interfere in China's administration in Northern Manchuria.



Manchurian Farm House

Jewish Synagogue at Harbin

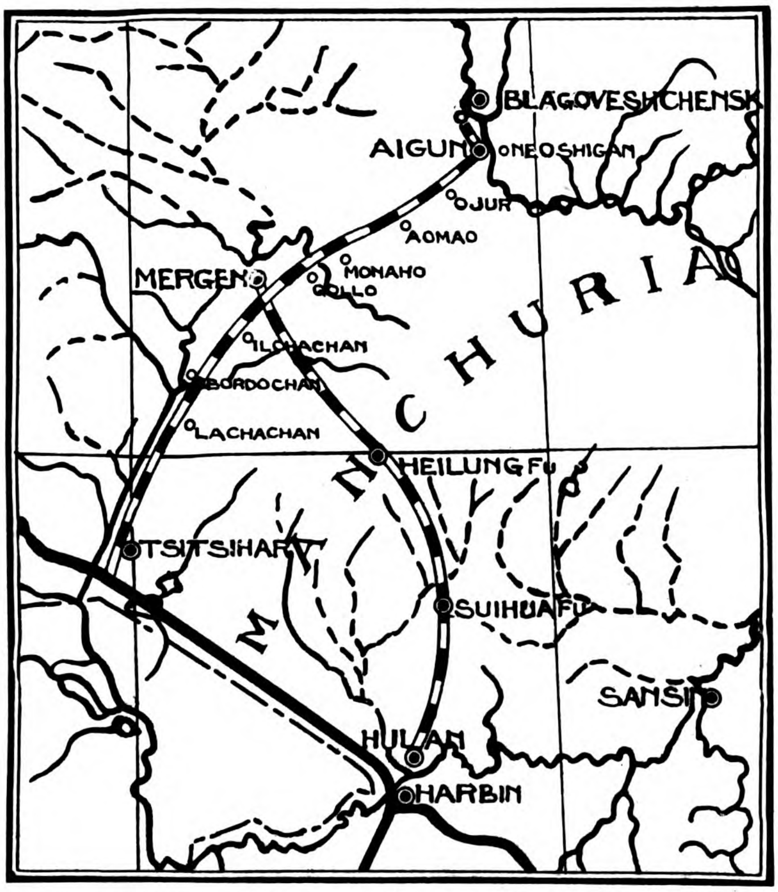


Bridge Over the Sungari at Harbin

The project of 1910 contemplated the building of a narrow gauge railway, while the second one had in view a line of standard gauge, as in use in China. As, however, the most sanguine advocates of the scheme had to admit that they could not raise sufficient capital to carry it out in its entirety they suggested to begin by building the line from Harbin to Hulanchen, about 20 kilometres from Harbin, and from there to Hailunpu, about 175 kilometres from Harbin.

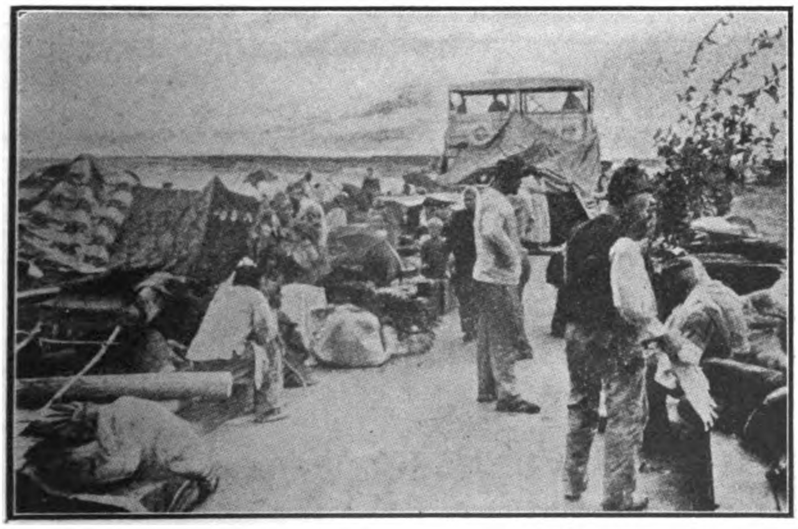
This railway was estimated to cost $7,000,000. It was hoped that with assistance to the extent of Tls. 2,000,000 from the Peking Government the balance could be found locally. The Central Government, however, did not seem to be disposed to advance that sum, probably having some doubt as to the capability of local people finding the balance.

For about two years the scheme showed no signs of development. The Russo-Asiatic Bank then offered to furnish the necessary capital, and the Minister of Communications in Peking entered into negotiations with Mr. L. DeHoyer, the representative of the Bank in Peking. Negotiations began in August, 1914, and lasted until March 27, 1916, when the agreement was signed.

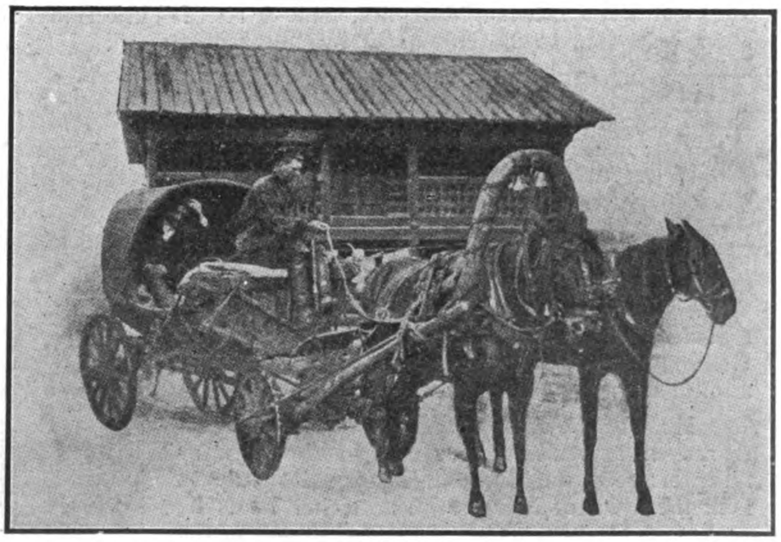


Map of Northern Manchuria Showing the Route of two New Lines from Tsitsihar to Blagoveshchensk via Mergen and from Hulan (Harbin) to Mergen—Existing Lines Shown in Black

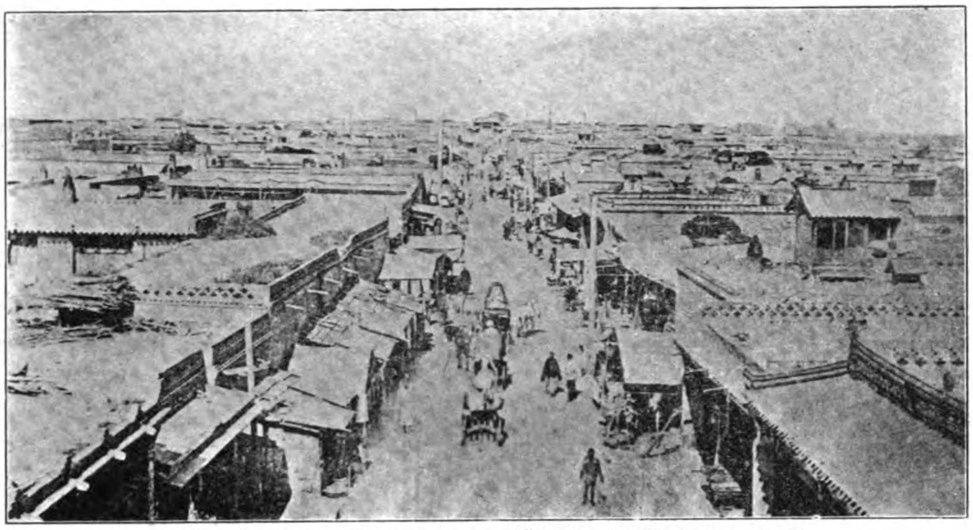
Apart from its value to Russia as a means of consolidating the interests of that nation in Northern Manchuria, the railway will open up an extensive region of valuable country, and will materially assist the work of colonization set afoot by the construction of the Chinese Eastern Railway. Before the building of that line virtually the whole of North Manchuria was a wild uncultivated country. The very sparsely populated areas about the Sungari River and its affluent the Hulan River were the lands of the Mongolian tribesmen known as the Horlos, while further north came those of the Olots, and still further north towards Mergen those of the Daurs. In the smaller Khingan mountains were tribes living on the chase, and only in the extreme north along the Amur River were there a few settlements of Manchu Bannermen. At this time there was only one small town



Russian Colonists on Amur River Steamer



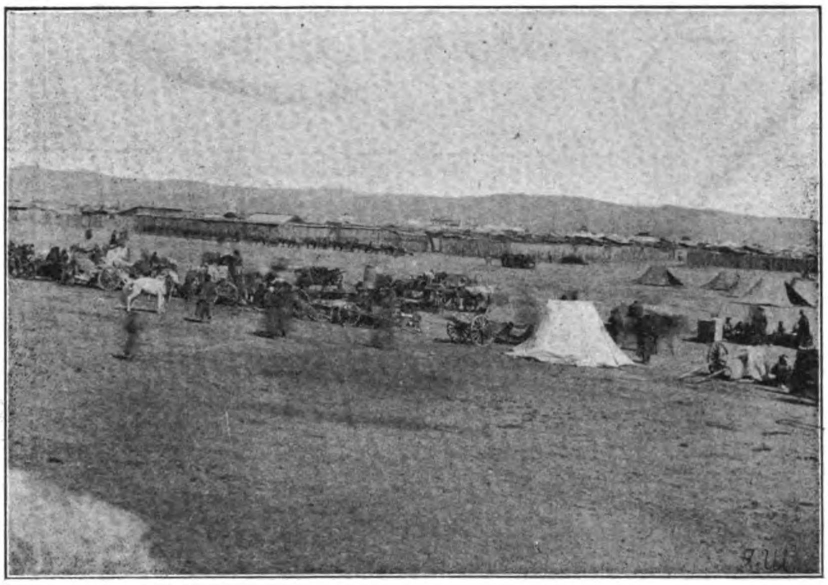
Russian Transportation on the Tsitsihar-Mergen Highway



Main Street of Tsitsihar, the Capital of Heilungchiang

worth mentioning, except Aigun, on the Amur River, and that was Heilungcheng on the Hulan River.

With the construction of the Chinese Eastern Railway great numbers of workmen and coolies were transported from China, mostly from Shantung Province. They earned comparatively large wages, and settled down in proximity to the railway. Thus were created the first districts in the zone of the Chinese Eastern Railway to the north of Harbin, the districts of Hulanfu, Suihuafu and Hailunfu. The advent of Chinese settlers caused the Mongol tribesmen to be pushed gradually farther and farther westward towards the Barga, and with their withdrawal the rich lands watered by the Sungari and Hulan Rivers were put under cultivation.



Mongolian Market Encampment in North Manchuria

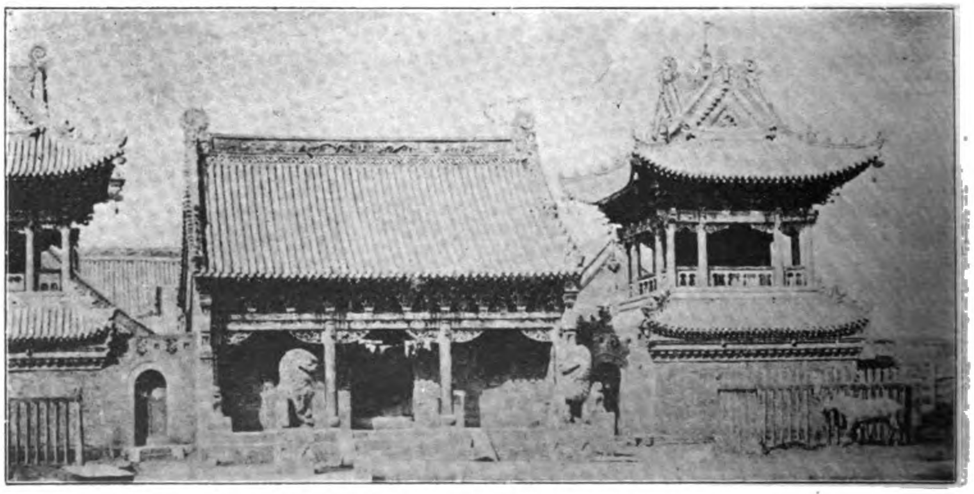
Immigration was developing most satisfactorily when the Boxer rising of 1900 put a stop to Chinese progress in this part of the Empire for six or seven years. In the last years of the Manchu regime a sound and serious scheme of emigration was launched by the Peking Government, in accordance with which, as is well known, Inner Mongolia, some parts of Turkestan and Manchuria had to be colonised by Shantung, Hunan, and other Chinese peasants. The Governor of Tsitsihar had to follow regulations issued by Peking, but the greatest facilities were accorded to colonists, enabling settlers to push northward until Heilunfu was reached. The Province of Heilungchiang, (Tsitsihar) was divided into the six districts of Heilungchiang, Suhuafu, Heilengfu, Mergen, Heiheifu and Aigun, roads were built between the district towns and telegraph lines were erected. In 1909 the old system of government under a Tartar General was abolished and a purely Chinese administration was inaugurated.

Most of the colonists naturally busied themselves in agricultural pursuits in the country lying between the Chinese Eastern Railway to near the town of Mergen. The richer lands lie near the Sungari River and its affluents, the Hulan and the Tunkan Rivers. Further to the north of Mergen the land becomes poorer, but on the whole may still be considered fertile. Wheat, barley, oats, beans, kiaoling, maize and other cereals flourish, the average crop per acre being 1,440 lbs.

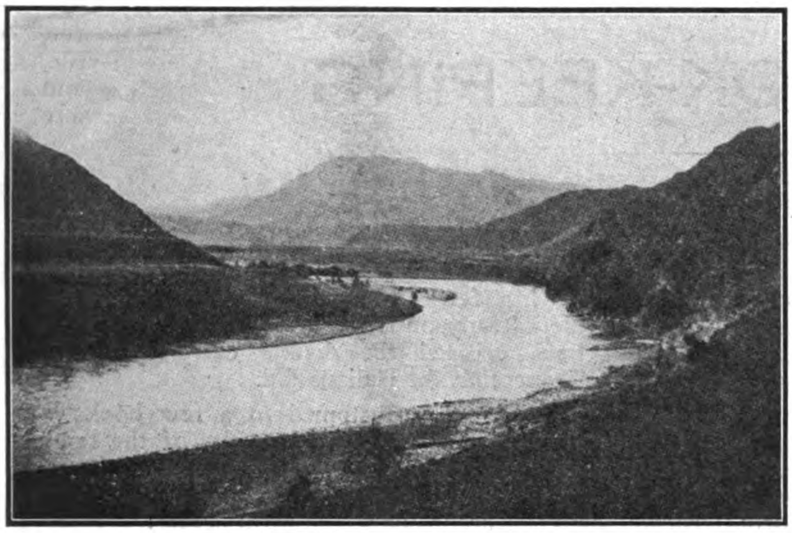
The northern region, which has as its centre the Amur River, is less rich from the point of view of agriculture. The winters are very cold, the summers short and the rainfall heavy. Wheat and oats are, however, grown with some success but the crops are about half that of the southern section. Insofar as other products are concerned there are deposits of graphite north of Suihuafu, and near Mergen on the River Hunhai are coal fields. Between Mergen and the Amur River there are extensive forests, while precious metals exist in the mountains.

Although the location of the line has not yet been made it will probably have a length of 725 kilometers between Harbin and Heiheifu, and will connect the following towns:—Hulancheng, Suihuafu, Heilunfu, Erkeshan, Dadun, Mergen, Aigun, Heiheifu. The railway between Harbin and Heilunfu would pass about 75 villages or settlements, while in the following 200 kilometers settlements of colonists would be tapped, though they are far from being dense. To the north of Mergen the population becomes scarcer. It was estimated about two years ago that the region through which the railway will pass had a population of about 2,000,000 while 3,000,000 acres were under cultivation. The experience of the Chinese Eastern Railway indicates that with the construction of the new line great numbers of people will settle in the vicinity.

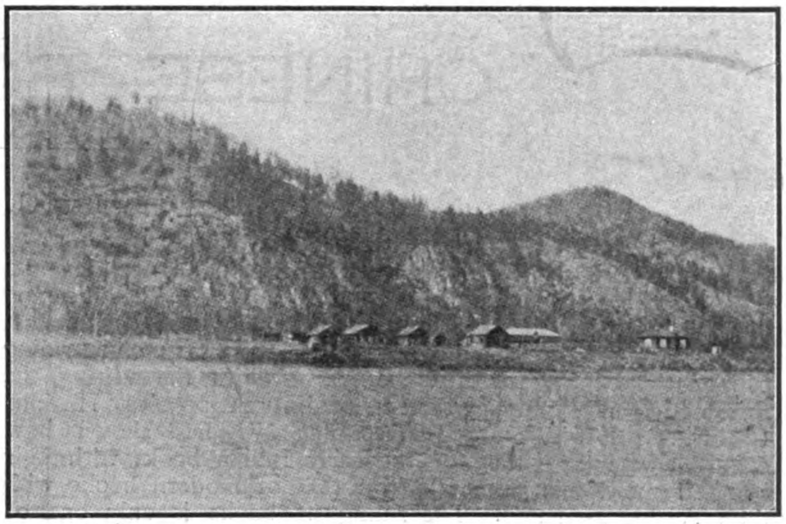
The products of this region have up to the present time been transported to markets in junks and tow-boats down the Hulan and Tunkan Rivers to the Sungari River and Chinese Eastern Railway. To reach the market from Tsitsihar the products go down the Noni River to the Chinese Eastern Railway.



Yamen of Chinese Governor at Tsitsihar



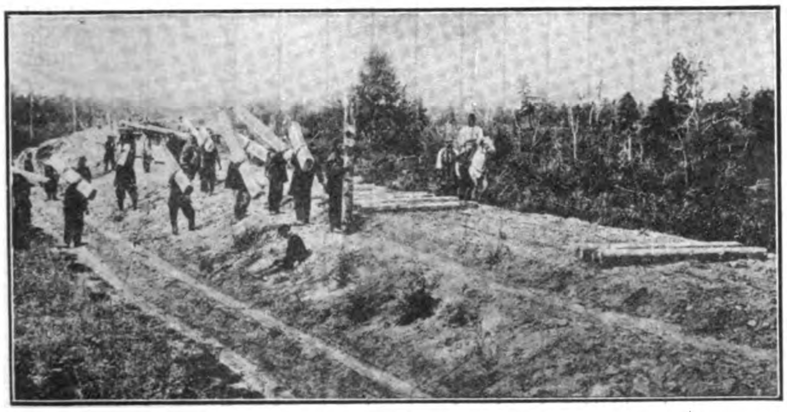
WIDE BEND OF THE AMUR NEAR BLAGOVESHCHENSK



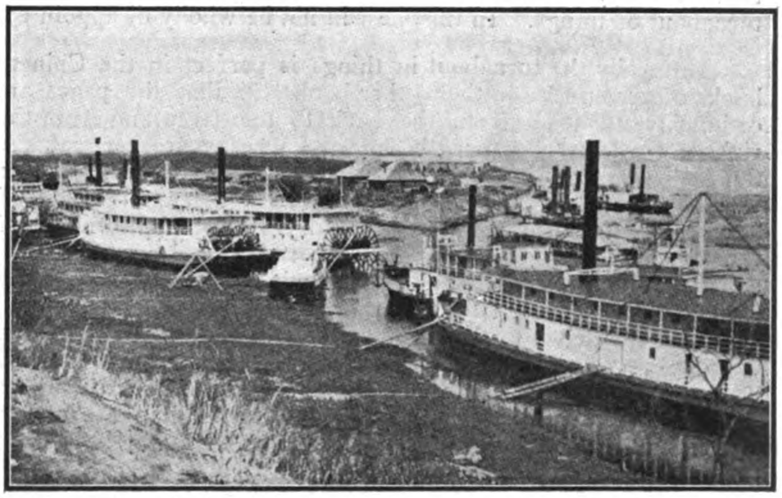
AMUR RIVER SETTLEMENT

Between Tsitsihar and Mergen the railway will follow the valley of the Noni River, and will tap a country already largely cultivated.

The development so far undertaken in the territory would be sufficient to make the projected railway pay between Harbin and Mergen, but the section between Mergen and the Amur River is not likely to pay until colonists take up the land and develop the natural wealth. It is fair to estimate, however, that within three or four years after the opening of the line there will be sufficient freight to balance expenses. In addition to the products of the country the line will also carry from the south imports such as machinery, cotton goods, tobacco, salt, paper, and other supplies for the colonists. Great need is felt for such imports owing to the present difficult means of transportation causing prices to be excessive.



RAILWAY CONSTRUCTION IN THE AMUR REGION



RIVER STEAMERS TIED UP FOR WINTER AT BLAGOVESHCHENSK

MONGOLIAN HOUSEHOLD IN HOLIDAY ATTIRE

MONGOLIAN SETTLEMENT IN NORTH MANCHURIA

CHINESE BOOK-KEEPING

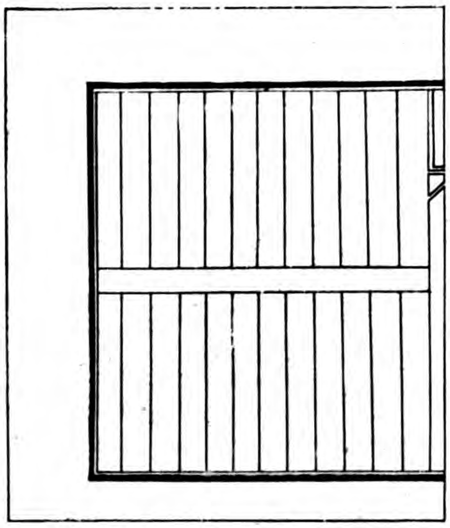
[By Ray Ovid Hall, M.A.]

Bookkeeping, like any other art, reflects the institutions and ideas of a country. Accordingly, the study of the bookkeeping methods of a people yields results of general and sociological interest as well as of technical value to accountancy. The ruling of account books, for instance, varies with the writing, the arithmetic, and the money systems of different peoples. Haskins ("Business Education and Accountancy") has shown how different was the ruling of the early Italian books with their cumbersome Roman numerals from that of modern books with their Arabic numerals. The ruling of books is only one of several details that show similar variations.

Having observed the peculiarities of Chinese dress, street traffic, writing, door knobs, and what not, the foreigner in China comes to look for inverseness and topsyturviness in all things Chinese. He concludes, more or less shrewdly, that the dominant theme in Chinese psychology is, to coin a pun phrase, *wrong-end-tuitiveness*. So in approaching the study of the bookkeeping methods originated by the natives, he naturally expects to find what, from the Western point of view, is a complete turnabout of things. In this, he will not be wholly disappointed.

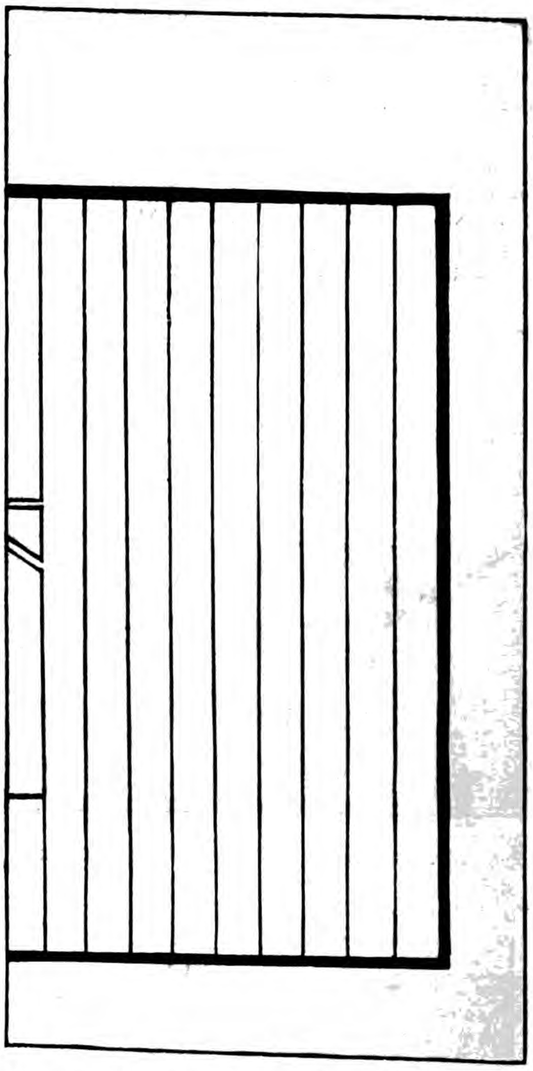
Naturally the turnabout in things is perfect in the Chinese books of account, as in their other books, in that the pages are ordinarily filled up from the back to the front and from the right to the left. Further, the lines of writing are vertical, the finished appearance of an account being described by Dr. Arthur H. Smith ("Village Life in China") as resembling that of "two lines of washing hung out to dry." Again, the name of the account is appended to the upper right hand corner of the account, as if by after thought. But, while in the ruling of the Chinese account the two "sides" are not completely reversed, throwing the debits to the right and the credits to the left, the expected reversal was at least begun. It was arrested just half way around; so that the debits of the account occupy the upper half of the page and the credits the lower half. Another millennium or so of undisturbed development might have seen the turnabout complete.

Below is a quarter sized ledger page illustrating the most common ruling of a Chinese account. The binding of this page is at the left.



Along with the dissimilarity of the Chinese account in form goes a surprising similarity in principle. Entries upon the upper or debit side of the account record things coming into the business or costing value; entries upon the lower or credit side of the account record things leaving the business or producing value. This principle applies to real and nominal accounts, like Expense and Cash, as well as to personal accounts. It is as if the present rather ragged single entry systems in universal use were the remnants of a golden age in Chinese accounting when double entry was the rule. At any rate, to change the present single entry systems to double entry requires no preliminary tearing up of the fundamental things in it. The change requires only the inclusion of a few additional accounts constructed according to a rule already in vogue. In time the Chinese probably would have evolved the double entry system in practically the same way that the Italians did.

To Westerners, who are accustomed to a few books of widely various rulings, the number and uniformity of the books of a Chinese system are surprising. All books, whether of original or of permanent entry, are made similar to the ledger form illustrated above or according to the form below:



This form is used only for auxiliary books,—miscellaneous note books which are not posted and which do not receive postings,—or for certain "books of a single account" (explained later) of which all or nearly all the items are on one "side" of the account. The Furniture Account book is an example of the latter class.

In his "Village Life in China," Dr. Smith mentions that the village butcher kept fourteen different books. The Western trained accountant stands incredulous, he can conceive of no such profusion. Nevertheless it must be said that this village butcher is evidently only a village butcher with no especial love of booklore. Most shops in Peking keep from ten to twenty books. The Bank of China, though generally modernized in its accounting methods, must be the pride of the land; it uses eighty-nine books and registers. A certain pawnshop keeper in

Peking collected his statistics in twenty-two different books. His contempt for the comparatively simple systems of bookkeeping taught his nephew at the Y. M. C. A. School of Commerce and Finance was at first unbounded. The nephew eventually succeeded in introducing a vastly more efficient system of six books. The uncle, in his heart of hearts, doubtless still sighs for the good old days when books were held in higher esteem. After all it is not Chinese but human persistently to fancy that somehow "effect must be proportionate to appliance."

The functions of the legion of books in a Chinese shop is not difficult to explain. One or more of them are what we should term blotters,—books in which to make temporary, hastily scribbled entries during the "rush" of business. Perhaps the rush never comes, but all entries are made in the blotter day book just the same. This superfluous type of book, still extant in American bookkeeping texts of three decades ago, finds warm sanction among the Chinese to-day. The Chinese love beautiful penmanship; and they are inveterate putterers. They are in fact guilty of some pure cases of *blotter ledgers!* A not uncommon method in Peking is to post daily from the books of original entry to a blotter main ledger and to transfer the postings every five days to a permanent main ledger.

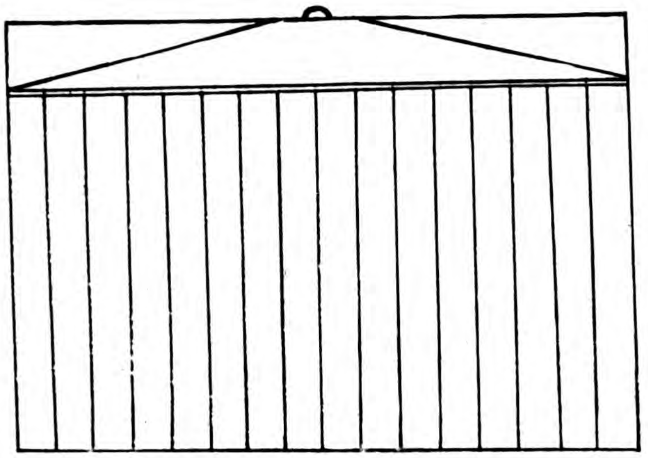
But most of the books of a Chinese system arise from the practice of giving to each account, except personal accounts, a separate book of original entry all its own. Sometimes even a personal account, if of sufficient importance, is likewise favored with a separate book. This system gives a specific meaning to our loosely applied term, "account book." Further, it explains the uniformity of the books of a Chinese system. A certain coal store, for example, keeps accounts with Cash, Purchases, Sales, Expense, Freight, Salaries and Wages, and Proprietary withdrawals; and it keeps a separate book for each account in which items are entered during the day. At the end of each day, the cash expenditures are posted from the Purchases, Expense, Freight, Salaries and Wages, and Withdrawals account books to the lower half of the cash account book. Receipts from cash sales are of course posted in like manner to the upper half of the Cash account book. Such rare receipts or payments upon account as occur in this particular business are entered directly into the Cash account book. Evidently the coal shed manager is letting slip the opportunity of using two more books; perhaps he has not heard of our Accounts Receivable and Accounts payable controlling accounts and should be enlightened.

The items from all the account books mentioned above are posted daily to the "Ti Chang," or ledger. The fact that managers are willing to pay for this laborious transfer of transactions already classified for the sake of having all accounts in one book indicates that they would take kindly to the simpler method by which Westerners usually construct a single book of accounts. To the teacher of foreign accounting this is encouraging.

In most cases the proprietor's account is kept in a separate book. Westerners might term it the "private ledger;" but the Chinese, with characteristic solicitude for the *status quo* call it the "Ten Thousand Year Old Book." I am told that an old law, no longer enforced, required the manager of a business to keep a proprietary account showing the net worth and net gain of the business and to render annual statements to the government. This sounds like the paternalism exercised by the French government in accounting matters. Even now, some of the merchant guilds insist upon proprietary exhibits from their members. (Cf. Jernigan's "China's Business Methods & Policy ") Most systems of books about Peking seem to show the influence of these ordinances. The method current is to make the proprietary account show the loss or gains upon each business account. Perhaps no Profit and Loss account has ever been used in China.

The Chinese are prone to discommode themselves, as are we, by keeping a separate book for small payments. In a small shop this petty cash book serves chiefly to add one more volume to the library surrounding the bookkeeper.

The fourteenth book of Dr. Smith's village butcher was possibly a small, ruled blackboard about eighteen inches square hung on a nail back of the counter, in plain view of every one entering the shop. Such a board is common in China. Upon it are chalked short time sales on account to the amount of a few coppers. Classified in Western fashion, it might be termed a petty customers' ledger. Long experience in the particular environment has probably proved the excellence of this device as a sort of silent d. n and as an eloquent indicator of the magnitude of the transactions which the business sees fit to record in its paper books. The ruling of this dun ledger, which suggests the facade of the Parthenon is shown below:—



While the system of giving each account a separate book of original entry operates dreadfully to clutter up the bookkeeper's desk, it is not appreciably worse than the tendency of the Japanese to widen their books of original entry to infinity and give each account a special column. This cheap, unintelligent imitation of Western methods, common in Japan, transgresess the axioms of accounting quite as grossly as do the native methods of the Chinese. The Chinese error is preferable at least in that it does not leave acres of unused space in their books, nor conduce so much to the entering of items in the wrong account.

One's first impression of the books of a Chinese system is distinctly unpleasant. In turning their pages, one gets that weary sensation that invariably comes from finding that the leaves of a new book have not been cut: for each page has a double thickness. Since the Chinese bookkeeper makes his entries with a brush, some such precaution is necessary to prevent the ink from soaking through to the other side of the sheet. The books are made of coarse, yellow paper with red lines, and they have paper bindings. They do not give the same sense of durability that our heavy, leather bound volumes do. A shelfful of them might suggest the sociology of a people, but there is nothing about them to suggest the romance of a business. Withal they are unattractive in the extreme.

The cheapness of the paper and bindings of Chinese books of account is, of course, an adjustment to the very low standard of the living of the people. Books in which the average transaction recorded is so small as in China naturally could not be so expensive as those used, for instance, in America. The cheap paper binding is made doubly necessary by the large number of books employed. The retail price of a 7" × 9½" ledger of 100 pages, such as is common in Peking, is 20 coppers, or about 7 cents in American currency.

An astonishing fact concerning Chinese books, to be noticed in the model rulings above, is that there are no columns. The suanpan, or abacus,* which unfortunately is in almost universal use, obviates the need of entering the figures in vertical rows. It is probably this contraption which has prevented the invention of "posting mediums" (books, margins and special columns that save posting). It has also tended to prevent the Western

[*Note: The abacus, by the way, was carefully tested at the Peking School of Commerce and Finance last year and proved to be decidedly inferior in both speed and accuracy for general business purposes. (See "Peking Gazette," June, 1915).]

classification of books into those of original and those of permanent entry. Is it not true that much of our modern aversion to blotters arises from the unceasing search for new posting mediums in the books of original entry? At least it may be said that the abacus has been a most persistent enemy to the improvement of Chinese accounting.

Despite its mal-achievements, the abacus has something original to contribute to the art of accounting. By supressing all columns and demonstrating their uselessness when it is used, it has demonstrated the uselessness of folio columns, or, at least, of folioing. The Chinese do not enter the number of the ledger page in the book of original entry and the number of the page of the book of original entry in the ledger, perhaps confusing the page with the date or amount in the process. With them, the date and nature of a transaction serve as the folio; while a check mark serves to signify that the transaction has been posted. It is remarkable how our practice has thrived so fatly, how not a treatise on accounting or bookkeeping has ever pointed out the waste of time and accuracy which it entails.

What now shall we say of the merits of Chinese bookkeeping? Wherein lie its merits and its demerits? Evidently the merit is that it has stood the test of centuries, stagnant though those centuries were. Crude and cumbersome, like the lathes and drills of this curious people, it is after all workable. However laboriously, it does achieve its purpose of recording and classifying business transactions in a useful way. For a country where labor is cheap, it suffices after a fashion. That it is only a single entry system has not thus far been a serious defect; for, as many accountants will agree, single entry may do very well for small establishments. Considering the hundreds of millenniums that blind, blundering mankind required to discover the polished stone hatchet, the spindle, and the steam engine, the invention of Chinese bookkeeping stands as a tremendous triumph. It is one of the greatest achievements of a tireless, peace loving people.

Clearly there are great glaring defects in Chinese bookkeeping. It is a naive, ill-examined, dead level system with an insufficient variety of devices to be adaptable to the mammoth enterprises of the industrial age. Second, even in the present stage it wastes profligately the stuff that China most needs,—time. Finally, its large number of books of original entry greatly impedes the auditor. "Defective Accountancy,'' said Haskins, "may become the handmaid of financial corruption." If speaking of China, he should have said *defective Auditing*.

[*Note. The author, who is principal of the Peking School of Commerce and Finance, gathered most of the information in his article from detailed reports made by a large number of the two hundred odd students in his school.*]

CHINA IMPROVING FISHERIES

China's first fishery school was established at Woosung in 1904 by the Kiang-Chi Fishery Co. and was followed soon by the provinces of Chihli and Mukden, the curriculum in these schools being modeled upon that at Woosung. Fishery training schools for the practical improvement of fishing methods under the Ministry of Agriculture and Commerce were started in 1914 along the coast, in the provinces of Chihli, Chekiang, Fengtien, Fukien and Kwangtung, the province of Chekiang having three schools. The Chinese Ministry of Agriculture and Commerce, to encourage fishery on the high seas, on April 28, 1914, issued regulations to promote fishing on the high seas and a sum of $50,000 was set aside in that year to be made an annual appropriation for the encouragement of the industry. Fishing vessels must be inspected before they can engage in this business. Many fishing boats have since been rewarded for meritorious service, and it is expected that more money will be devoted to this purpose.

The ministry sent commissioners to the various fishing districts to investigate phases of the industry during the last three years, and their reports have been submitted and published. The points emphasized include: Kinds of fishery products, fishing seasons in different places, fishing vessels and the shipbuilding trade, the places where the fishermen come from, the yearly returns of the trade, the total number of ships lost each year, imports and exports of fishery products, duties and levies on this trade, and the best means of developing the industry.

JAPAN'S BROAD GAUGE

Dr. Soyeda, President of the Railway Board and Vice-President of the Gauge System Investigation Commission, explained in full the proposed broad gauge system bill at a recent meeting of the Investigation Commission held at the Railway Board Office. The gist of his statement was as follows:

The investigations of the proposed broad gauge system were carried out by the Railway Board based on four standards, namely, the ordinary narrow, special narrow, ordinary broad, and special broad gauge, taking into consideration the probable rate of increase in the freight and passenger traffic from 1926 to 1943 inclusive. If the narrow gauge system be adopted for the railway between Tokyo and Shimonoseki, the special narrow gauge is preferable to the ordinary one, but when the special narrow gauge is compared with the special broad gauge, the latter is preferable to the former. The reconstruction expenses for changing to the special broad gauge by 1943 shows an excess of 17,000,000 yen over that of the special narrow gauge, but when the business expenses after the reconstruction are compared, 2,430,000 yen can be saved annually by the adoption of the special broad gauge. On the basis of this fact the Railway Board has decided to adopt the special broad gauge.

The reconstruction expenses of the railway line from Tokyo to Shimonoseki in twelve years are estimated at 297,000,000 yen and those of other lines in twenty-five years at 297,000,000. These estimates are made on the supposition that an annual amount of 20,000,000 yen can be borrowed from the ordinary accounts of the Government, besides the railway profits, and if the loan from the ordinary accounts of the railway profits is increased, the time required for the reconstruction will be reduced accordingly. The estimated reconstruction expenses are the maximum figures, which will be lowered to some extent by the use of old materials and other economies. If the present narrow gauge system is continued and improved, it will cost 280,000,000 yen on the line from Tokyo to Shimonoseki, and 375,000,000 yen on other lines in the mainland, by 1943. The improvement expenses of the present narrow gauge railways, as compared with the reconstruction expenses by the special gauge system, show a decrease of 17,000,000 yen on the Tokyo-Shimonoseki line, and also a decrease of 222,000,000 yen on other lines in the mainland, but the business expenses of the special gauge railways favourably compare with those of the narrow gauge as already mentioned.

In addition to this fact, the broad gauge is, it is needless to say, far preferable to the narrow gauge in view of the national defences and the development of commerce and industries. If the present narrow gauge is to be replaced by the broad gauge, it is advisable to carry out the plan as soon as possible, for by so doing the annual improvement expenses can be dispensed with.

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CONTENTS

	PAGE
New Railways in North Manchuria	415
Chinese Bookkeeping	420
Japan's Broadgauge Plan	422
Japan and China's Foreign Indebtedness	423
The Quest for a Constitution	424
The Bank of China	424
Chinese Plants for American Use	425
China Reverts to Republicanism	426
Improving Chefoo Harbour	431
Transportation in China	436
The Wreck of the Chiyo Maru	437
Constitutional Imperialism in Japan	438
Antimony in China	440
Japanese Cotton Industry	442
The Foreign Trade of Japan	443
The Korean Tariff	443
Engineering, Financial and Industrial News	444

JAPAN AND CHINA'S FOREIGN INDEBTEDNESS

On April 6 the Yokohama Specie Bank, the Japanese unit of the Five Powers Banking Group, announced that, under instructions from the Japanese Government, it intended to withhold payment of certain funds belonging to the Chinese Government. These funds represented the surplus of the Salt Administration revenue after making due provision for all the interest and other obligations charged thereon. By the terms of the Reorganisation Loan Agreement, of the surplus salt revenue sufficient has to be retained by the Group Banks collectively, to meet six months' obligations. Any sums not required for this purpose become part of the general revenue of the Chinese Government.

At the end of March in the Group Banks there was $16,800,000, in which any money then in transit is not included. On April 6 the Group Banks were authorized to release $5,800,000, of which $800,000 was refunded as the Chinese Government had been paid $800,000 at Chungking in Szechuan. The Banks, with the exception of the Yokohama Specie Bank, acted upon the authorization. The Japanese Bank explained that its refusal to abide by the terms of the Loan Agreement was due to the probability of the internal troubles in China causing a diminution in the revenues from Salt and Customs, thus endangering the interests of Japanese bond-holders.

As the Group Banks have possession of the surplus funds in a purely fiduciary capacity it would appear that the action of the Japanese Government in ordering a semi-official Japanese Bank to withhold their rendition is illegal. Whether that be so or not, and whether in any event Japan has given proof of good faith either to her associates in the Consortium or to China, it is not our immediate object to inquire. It will be of interest, however, waiving the question of the legality or morality of the action, to ascertain whether it was based on apprehensions possessed of any degree of plausibility. The official explanation was the probable endangerment of the interests of Japanese bond-holders, by a decrease in the revenue obtained by China from Salt and Customs. We will not, as we have indicated, discuss the justice of the action, but we will give a few figures that should convince the most sceptical that the reason alleged to justify it is without a shred of plausibility.

At an exchange of 2/8, and with the existing Boxer Indemnity contribution, the Salt Administration will have to pay during the rest of the year the following amounts;—

	Shanghai Taels.
9 more instalments of the Reorganisation Loan..	7,031,250
1 more Crisp Loan coupon	937,500
9 more contributions to the Boxer Indemnity at present rate of Shanghai Taels 928,555 ..	8,356,995
Chihli and Hupeh Bonds	600,000
Ta Ching Bank Loan 9 months at $60,000 ..	394,200
	17,319,945

This represents $24,726,000. As the Group Banks held $16,800,000 at the end of March, there was almost sufficient in hand to discharge all obligations for the next nine months. To put it in another way, the collections for three months, during which an internal conflict was proceeding, were only short by some $7,000,000 of the total amount chargeable on the revenue for the full twelve months. When these figures are considered it is obvious that there was no justification for the action of the Japanese Government in vetoing the payment. Even were the internal strife in China to attain much greater dimensions than there seems any reason to apprehend, it is a practical impossibility for the revenue during the next eight months to fall below the amount necessary to meet obligations.

From the fact that Japan vetoed the payment to the Chinese Government, while Great Britain, France, Russia and Germany had no hesitation in permitting it to be made, the natural inference would be that the interests of Japanese bond-holders are immensely greater than those of other nationals. Let us see what degree of authenticity attaches to this inference. Although

Japan is supposed to have supplied one-fifth of the Reorganisation Loan of £25,000,000, in actual fact no bonds at all were issued in Japan. Great Britain and France subscribed £15,000,000; Germany, £5,000,000; Belgium £2,000,000 while £3,000,000 was placed by the Russians in Russia, Germany and Belgium. An investigation of the loans charged upon the salt revenue shows that the only interest that Japan has is her share of the Boxer Indemnity, originally amounting to Yen 55,000,000. Taking the Boxer Indemnity into account, British interests are immensely greater than those of the Japanese. After Great Britain come France, Russia and Germany with interests amounting to £100,000,000, while Japan's total interests amount to the comparatively paltry sum of £5,000,000.

In view of the irrefutable facts adduced above the official defence of Japan's action in retaining the funds of which she is a trustee, is obviously inadequate and unconvincing.

THE QUEST FOR A CONSTITUTION

One certain outcome of the crisis through which China is now passing, irrespective of which of the protagonists prevails, will be the formulation of a Constitution in which, it is to be hoped, the mistakes of the past will be avoided. There has been no lack of activity on the part of Constitution-makers in China, but their efforts have not stood the test of practice. Even the Manchus, with the prescience that not infrequently attends the "sun-set of life," tried to prop up their tottering fortunes with a Constitution. So desperate were they that the Constitution that they offered practically deprived them of all power and left them only the shadow of sovereignty. In many respects this Constitution was almost as liberal as the Provisional Constitution drawn up at Nanking in 1912. But the offer came too late. On the point that the Manchus had exhausted their mandate the people were almost unanimous, and, consequently, no eleventh hour concession could avert abdication.

The Provisional Constitution of Nanking was in many ways a remarkable document. The powers that it gave the National Assembly were probably greater than those exercised by a legislative body in any country. It should be explained that the Provisional Constitution conferred these powers on a National Council which was to officiate until the convocation of the National Assembly, but in the regulations for the elections for the latter body, promulgated on August 10, 1912, it was explicitly stated that "Prior to the adoption of the Constitution of the Republic the powers and privileges of the National Assembly shall be the powers and privileges of the National Council as defined in the Provisional Constitution." This was also provided for in Article 28 of the Provisional Constitution itself.

A brief explanation of the powers that were thus conferred upon the National Assembly may be desirable. The Assembly was empowered to veto appointments made to the Cabinet by the Provisional President; to impeach the Provisional President or members of the Cabinet; to pass legislation in spite of the veto of the Provisional President. It will be seen that, in the event of a difference of opinion between the President and the Assembly, the former was practically powerless. The right of appointing members of the Cabinet was really held by the National Assembly, as it could constitutionally withhold its concurrence with any proposals made by the President in this connection. By a process of elimination it could obtain a Cabinet composed of men entirely under its domination, and keep it in order by the threat of impeachment. The President was given no power to dissolve the Assembly, and so refer any question in dispute to the people. In short, the Constitution placed Parliament in a position of supremacy, similar to that which Parliament arrogated to itself in Great Britain during the Interregnum, until Cromwell contemptuously swept it and its pretensions out of existence.

It is unnecessary to relate in detail the circumstances which led to the suspension of the National Assembly in November, 1913. From the very outset it was evident that the Kuomingtang party, which dominated the Parliament, was determined to abate no jot of its constitutional powers. Into the merits of the questions in regard to which the President and Parliament came into collision it is not essential to enter; it is sufficient to state that it was abundantly evident that progress was impossible until one side or the other was reduced to impotence. The President prevailed, the Kuomingtang members of the Assembly were unseated and, as less than a quorum remained, the Assembly, in effect, ceased to exist.

Although the President had temporarily triumphed, it was obvious that if the Nanking Constitution were to continue to be operative a repetition of the struggle for supremacy was almost inevitable. Consequently a committee was appointed, to which Professor F. J. Goodnow and Dr. Nagao Ariga acted as advisers, to frame a new Constitution. This instrument made its appearance in May, 1914. By its provisions the relative position of President and Parliament were practically reversed. He was given most of the powers which, by the Nanking Constitution, were accorded to the Parliament. The right of the Assembly to veto appointments made to the Cabinet by the President disappeared, and with it the right to impeach members of the Cabinet and that of passing legislation over the veto of the president. The power of convoking, opening, proroguing or closing sessions of the Assembly was vested in the President.

The most superficial comparison of the Nanking Constitution of 1912 and the Constitution of 1914 shows that the intention of their respective framers was diametrically opposite. The Nanking Constitution sought to curtail the power of the Provisional President and to give almost unlimited power to Parliament. The Constitution of 1914 was designed to curtail the power of the Parliament and to give almost unlimited power to the Provisional President. The verdict that will be given after the dust of disputation has settled, will probably be that both sides failed to accomplish their object because of their inability to recognise that the people desired co-operation between President and Parliament and not conflict.

After her dearly-bought experience of the evil results that attend immoderation, China, it may be hoped, will insist upon securing in her permanent Constitution the judicious balancing of power upon which real progress and security depend. The interests of the country would be just as likely to suffer at the hands of an unrestrained Parliament as at the hands of an unrestrained President. The happy mean is the ideal to be sought, and if this golden fact has impressed itself upon the makers of the permanent Constitution that is shortly to be presented to the representatives of the people, as a result of the trials and tribulations of the last few years, all will yet be well. Even if the framers of the Constitution have not avoided the pitfalls into which their predecessors stumbled, the Citizens' Convention has it in its power to amend the draft, and it is to be hoped that, if necessary, it will exercise these powers with patriotic wisdom.

THE BANK OF CHINA

The rumours that were set in circulation in regard to the Shanghai branch of the Bank of China some little time ago were so evidently designed to effect a political object that they met with practically no credence in foreign circles. Instead of damaging the Bank, the effect of these rumours being circulated was to inspire the management to submit its books to one of the best known and trustworthy firms of foreign accountants in the Far East. After a careful investigation this firm was able to give the Bank a certificate of perfect financial health.

No inconsiderable progress has been made by China in regard to the adoption of modern banking methods. In the Bank of China and the Bank of Communications she has institutions that come well out of the ordeal of comparison with the great foreign banks operating in China. These two Government concerns showed a firm grasp of financial methods in connection with the issue of the domestic loans which have become a gratifying feature of China's national life. The factor most essential if internal borrowing is to be successful is, of course, confidence on the part of the people in the Government, but scarcely less essential is the organization by means of which

the way of the investor is made smooth. Much of the credit for the success which has attended the issue of domestic loans is undoubtedly due to the managements of the national banks.

The report in regard to the affairs of the Shanghai branch of the Bank of China is of such interest that its republication is entirely warranted. It reads as follows:—

In accordance with instructions received we beg to report that during the past week we have been making an investigation of the affairs of the Bank as shown in a Balance Sheet drawn up on March 4, 1916.

At the commencement we may say that all our requirements as investigators have been promptly and satisfactorily complied with.

Organization. We report that in our opinion your organization is excellent. Full schedules have been supplied, supporting the Balance Sheet items, in a manner entirely satisfactory; and we are confident that no other Bank could have done better. The accuracy of the Schedules is commendable when the rapidity of their preparation is considered. Each Schedule was very carefully investigated by us, and a very full comparison made with the actual books from which they were extracted.

Management.—This scarcely comes within the scope of our duties—but we are convinced the management is sound and careful because the organization of the staff is good, whilst we are satisfied that loans against security have been wisely and carefully made.

Bank Note Issue; Bank Notes of Other Banks; Bank Notes of Branches; Silver in Treasury, in coin and sycee:—

These we investigated on Sunday, 12th instant, a very thorough check being made. We are satisfied that the notes, coins and sycee said to have been in the Treasury on March 4, were in fact actually there.

Government Accounts.—It is very pleasing to report that there is no sign of abuse of privilege, and that instead of the Government being overdrawn (as might, possibly, have been expected) we were glad to find that in fact the Bank had Government Funds in hand to the extent of $608,215.66 made up as under:—

	Due to Bank. $	Due by Bank. $
Fixed loans—		
Provincial Treasurer of Kiangsu	200,000	
Overdraft on current accounts—		
Ministry of Finance.	685,551	
Interest paid on Government Bond under direction of Minister of Finance	160,000	
Temporary advances and sundry debtors—		
Ministry of Finance (Tls. 10)	13	
Special deposits—		
Provincial revenue, taxes and salt gabelle		
Balance due by Bank of China to the Govern-		1,653,780
Ment.	608,205	
	$1,653,780	$1,653,780

Loans and Securities—We have examined these very carefully, and have inspected the securities. We have been able to value certain of the securities ourselves, independently of the Bank, such as cotton (raw, yarn and ginned) piece goods, wheat, silk and rubber shares, and in each case there undoubtedly is a sound and safe margin.

In the case of loans against Government bonds, where being a Government Bank one might expect you to be more liberal than other Banks, we find the following Loans (in dollars) so secured:—

Loan	Govt. Bonds Face Value.	Market Value.	Margin.		Per cent.
35000	60000	42000	7000		20%
25000	40000	28000	3000		12%
93243	141000	98700	5456	about	6%
3147	10000	7000	3853	over	100%
2800	5425	3797	997	about	35%

Property, Land and Godowns—These are valued in the balance sheet at $406,881.90, but we have seen a valuation made by Messrs. Atkinson & Dallas in 1911 valuing the properties at Tls. 325,801 at ex. 73=$446,302.74 or a surplus of $39,420.84—and we understand the value of the property has increased since Messrs. Atkinson & Dallas made their valuation, and could be readily sold—we have seen the title deeds with declarations of trust attached, and they are in order.

Investments— $73,754 85—These consist of:—

	Face Value.	Market Value.	Loss
8% Military Bonds	50,000	40,000	10,000
6% Internal Loan	28,175	19,722	8,453
Chin Hua Bonds	580	580	—
	$78,755	60,302	18,453

and they appear in the statement at their market value which is in order.

Amounts Due by Head Office, Branches and Agencies—As is usual in cases of this sort we have had to assume the accuracy of the figures submitted to us. The balances have, however, been carefully compared with the Shanghai books and agree therewith, and we have no reason whatever for doubting their accuracy.

Cost of Bank Notes $12,049.31—This amount has been allowed to remain as an asset as we understand the cost is being refunded by the Head Office, and in any case it is an expense that quite properly can be written off over a number of years. The original cost of the notes was $26,684.71 (in 1914) and since then over 50 per cent. has been written off.

In conclusion the position of the Bank is as follows:—

Total Assets	$13,677,732.55
Less Liabilities:	13,642,463.97
Surplus of Assets over Liabilities at Shanghai	35,268.58

In addition to this surplus you have a secret reserve of at least $39,420.84 between what your godown property cost you and Messrs. Atkinson & Dallas' valuation of 1911. The Head Office balance includes the profits of Shanghai yearly transferred to Peking, that would otherwise appear as Reserves of the Shanghai Office in the balance sheet.

In short we consider the financial position of the Bank in Shanghai to be satisfactory.

Bank of China, Shanghai Office.

Statement of Affairs at March 4, 1916.

Liabilities.			$
Due to the public and to Government department			10,260,439
Bank notes in circulation			3,382,024
Surplus of assets over liabilities at Shanghai			35,268
			$13,677,732
Assets.			$
Due by the public and by Government department			3,507,068
Amounts due by Head Office, branches and agencies. ...			2,694,970
Cost of Bank notes			12,049
Furniture			1,250
Property, land and godowns, North Thibet Road, North Szechuen Road and Soochow Creek (at cost)			406,881
Investments (reduced to market value)...			60,302
Reserve against note issue—			
At Head Office, Peking (in accordance with statutes)	400,000		
In Treasury Shanghai	2,982,024	3,382,024	
Cash in Treasury Shanghai		3,084,926	
Deposits and current accounts with other Banks		548,259	6,995,209
			$13,677,732

Examined and found correct subject to our report of this date.

LOWE, BINGHAM & MATTHEWS,
Auditors.

Shanghai, March 16, 1916.

CHINESE PLANTS FOR AMERICAN USE

The results of a three years' trip in the Far East by a plant explorer of the United States Department of Agriculture have been summarized in a statement from that department*. Of the many specimens forwarded to this country during the expedition, the specialists regard as most significant the jujube, a fruit new to this country, which may be suitable for use in the Southwest; a wild peach resistant to alkali, cold, and drought, the root system of which offers great possibilities as a grafting host; certain Chinese persimmons larger than any hitherto known in this country; a number of aquatic food roots and vegetables which offer promising possibilities for the utilization of swamp land; some 30 varieties of vegetable and timber bamboos; and a number of Chinese vegetables, bush and climber roses, shrubs, and trees.

This trip just concluded is the third expedition into China to discover new plants suitable for introduction into the United States. The three expeditions together have yielded for planting and testing for commercial adaptability seeds, roots, or cuttings of some 3,000 food and forage plants, flowers, ornamental shrubs and vines, shade and timber trees. The earlier expeditions brought specimens of many cold-resistant and dry-land grains, sorghums, soy beans, alfalfas, and forage plants, and also certain semitropical plants, such as the bamboo, which are now under experimentation to determine their usefulness for the extreme South.

* A full account of the discoveries of Plant-explorer Meyer was published in the Far Eastern Review for July, 1915.

CHINA REVERTS TO REPUBLICANISM

Yuan Shih-kai Abandons Absolutism

The immediate effect of the Mandate of Renunciation, by which President Yuan Shih-kai cancelled the monarchy, was, as recorded in our last issue, to bring back to office Mr. Hsu Shih-chang, who resumed duty as Secretary of State. It was hoped that the Southern republicans, as the main object for which they had taken up arms had been achieved, would agree to a speedy cessation of hostilities. No indication that they were prepared to adopt this course was immediately forthcoming.

The Central Government proceeded methodically to make the necessary adjustments in view of the change in the form of government. The Republican Calendar was restored. A special session of the Tsang Cheng Yuan was held on March 25, which was attended by Mr. Hsu Shih-chang as representative of the President, to frame a reply to the Mandate cancelling the monarchy and returning the petitions advocating its restoration to the Yuan. The terms of the reply sent to the President are (*Peking Daily News* translation) as follows:—

On the 22nd inst. this House received a despatch from the President to the effect that "I hereby declare that I still recognize that the memorials and documents transmitted to me through the Acting Li Fa Yuan in connection with the request for enthronement are inconsistent with the present condition of this country. The Bill passed on the 11th day of 12th month of last year on the recognition of monarchy is hereby cancelled, and the State Department is hereby instructed to return to the Li Fa Yuan all the petitions urging enthronement from the provinces and special administrative areas, so that they may be returned to the original petitioners to be destroyed, etc." On the same day we received a despatch calling for an extraordinary session of this House on the 23rd instant; and we also received all the above mentioned petitions, etc.

On the 25th instant a sitting was held in this House, and it was resolved, that all the petitions should be returned on that day. It will be remembered that on the 11th day of the 12th month of last year a Bill was passed by this House to the effect that all laws and mandates which were not in conflict with the monarchical form of State should remain in force, etc., and this Bill was duly promulgated by a special mandate. As now the Bill on the recognition of monarchy has been cancelled, the above Bill should therefore also be cancelled.

A proposal was made that the Tsan Cheng Yuan should ask to be dissolved to show its contrition for having advised the change in the form of government. This was adopted and a message in the following terms (*Peking Gazette* translation) was sent to the President:

Some time ago the Acting Li Fa Yuan, in the name of the principal Representatives of the People, submitted to the President the "designation petitions." Now those petitions are returned to be destroyed. It is clear that the Great President wishes to maintain the Republic and thereby to save the precarious situation. We express our illimitable admiration for such an act. Since this Yuan rashly advised the President to accept the Throne, thus causing complaints to come from many quarters and thereby tarnishing the high virtue of the Great President, this Yuan is no longer capable of representing the real and true will of the people in its official discussions. The Organization law of the Li Fa Yuan, while providing for the maximum length of the extraordinary session gives no minimum limit. It is plain, therefore, that it will not be a violation of the law if the Yuan closes after holding only one or two meetings. It is proposed that this Yuan should request the Government that the discussions of the extraordinary session should be limited to the restitution of institutions made null and void by the adoption of the monarchy. Other matters should be left to the discussion of the organ elected according to law and representing the people, with a view that the expectations of the people may be satisfied and honesty made manifest.

A mandate was issued on March 27 reviving all the Laws that had been suspended when the change in the form of government had been made.

From the tone of the Chinese newspapers in Shanghai and elsewhere which had supported the Yunnan movement from the outset, it became evident that the cancellation of the monarchy was regarded as a sign of weakness. While not unanimous on the point, it was apparent that a large number of the anti-monarchists would be satisfied with nothing less than the resignation of the President and the punishment of those who had taken a prominent part in the monarchical movement. Even more extravagant demands were made in some quarters. It was suggested that the President and his chief supporters should suffer decapitation and confiscation of their estates, while for three generations the Yuan family should be debarred from holding official positions in China. There is no reason to suppose that the section that put forward these demands was representative of any influential body of opinion, but the mere fact that such demands were made showed that the action of the Government in cancelling the monarchy was held to be an admission that it was terror-stricken and unable to resist any pressure that might be exerted. That this opinion was held in more responsible quarters was shown by the action of Mr. Tang Shao-yi, formerly one of the President's closest friends, in sending a telegram to His Excellency couched in decidedly brusque terms, stating that his resignation was imperative.

On the other hand, several of the Military Governors telegraphed to the President assuring him of their support, and announcing that, if those who had taken up arms against the Government did not accept the cancellation of the monarchy as a settlement, they would assist to crush them by military force.

In continuation of the record of the important developments taking place in China it has to be noted that thirty-seven members of the National Assembly of 1913, representing seventeen provinces of China, and the oversea Chinese emigrants, on March 27 sent a telegram to the Foreign Ministers in Peking, couched in the following terms:—

To Their Excellencies the Ministers of the Friendly Nations at Peking:—

Ex-President Yuan Shih-k'ai, by proclaiming himself Emperor, violated his oath of office, and rendered himself guilty of high treason. He can therefore no longer be considered the Chief Executive, but is indeed the common enemy of the people. For this reason, as long as Yuan Shih-k'ai remains in power, the country will be in a state of civil commotion, and the hope of the friendly nations to see peace and order reign in this land will never be realized.

Finding himself in a helpless condition, he has ordered the cancellation of the monarchy. He hoped thereby to deceive both our own people and foreigners, and to thus bring about a compromise until a more favourable opportunity should arise for the gratification of his selfish ambitions.

The crime of high treason, from a legal standpoint, is unpardonable. Moreover, his duplicity in see-sawing between the roles of Emperor and President is child's play. How, then, can we allow him to be so shameless as to revert to his former position? We, the undersigned, voicing the sentiments of the entire nation, have therefore solemnly pledged ourselves to deprive him of his power in order to eradicate the source of all these political upheavals. We cannot sacrifice the future peace and safety of the state to any evanescent compromise which may be suggested. This is also the attitude of the Righteous Armies of Yunnan, Kweichow, and Kwangsi.

We therefore venture to address this communication to your Excellencies, and to ask the favor of your transmitting the same to your respective Governments and peoples, so that they may know that the citizens of the Republic of China are determined to uphold the supremacy of the law and the constitution of the land, and to bring to justice the national betrayer. We will not rest until we have attained our object. We trust the friendly nations will see through the duplicity of Yuan Shih-k'ai and approve the inevitable course to be taken by our citizens.

Respectfully submitted.

On April 1 the Council of State held a meeting in its capacity of acting National Assembly. A despatch from the President relative to the decision of the Assembly to limit its activities to the restoration of republican institutions was read. The *Peking Daily News* summary of the despatch is as follows:—

We have received a despatch from the Acting Li Fa Yuan stating that as the Yuan took a rash step by recommending the

restoration of monarchy, it has lost the confidence of the people, putting the President in a difficult position, and is not now worthy to represent the will of the people. Therefore the discussions of the Yuan should be confined to the problems connected with the cancellation of the monarchy, and the rest of the State affairs should be reserved for the decision of the coming formal Li Fa Yuan, etc. We hereby point out that the right and power for the Acting Li Fa Yuan have already been provided for in the Constitutional Compact. If important questions arise during the time when the formal Li Fa Yuan has not been organized the said Acting House should sit in accordance with the provisions made in Article 67 of the Constitutional Compact, etc.

The Assembly passed bills cancelling the constitutional monarchy and cancelling their own appointment as Principal Representatives of the People.

A Mandate was published on April 3 in relation to the proposal to convert the Citizens' Convention into the National Assembly. We quote the *Peking Daily News* translation:—

Some time ago when we were in a hurry to introduce a Constitutional Government, it was considered necessary that a legislative organ should be organized immediately. We therefore sent a despatch to the Acting Li Fa Yuan consulting its opinion, and a resolution was passed to the effect that the successful candidates of the Final Election of the Citizens' Convention should be considered as successful candidates of the Li Fa Yuan, etc. Later on, on the 27th day of the 3rd month, we received another despatch from the Acting Li Fa Yuan stating that a resolution was passed re-enforcing all laws and mandates promulgated during the time of Min Kuo. Both of the above resolutions were duly promulgated by Mandates.

Among the present laws and mandates of Min Kuo the most important ones are those connected with the Constitutional Compact, such as the Laws on Organization of the Citizens' Conference, and of the Li Fa Yuan, and on the Election of the Members, etc., the enforcement of which will show the spirit and energy of the Min Kuo. When we submitted to the Acting Li Fa Yuan, the bill on the Candidates of the country provided for in the Constitutional Candidates of the Final Election of Li Fa Yuan, we desired to hasten the introduction of a constitutional Government. Such measure, however, was only intended to meet the requirement of the time.

I, the President, have now carefully and respectfully declared that all the laws and mandates of Min Kuo should continue to have their effect; hence it is imperative that the original laws on the Organization and the Election of the Citizens' Convention and Li Fa Yuan should be strictly enforced, and that all the procedures provided for therein should be carefully followed. Thus the principle to enforce constitution and to respect the will of the people will be made known to the country.

It is hereby ordered that the persons some time ago elected in the Final Elections of the Citizens' Convention shall remain as successful candidates of the final election of the Citizens' Convention in accordance with the Laws on the Organization of the Citizens' Convention; and that the Mutual and Single Elections of the said Convention shall be proceeded with as provided for in the law. The procedures for the making of the Constitution Compact shall be carefully followed. As to the election of the members of the Li Fa Yuan, preparations shall be made to proceed to the election without delay in accordance with the provisions made in the Law on the Election of the Li Fa Yuan. As soon as the preparatory works are completed a date shall be fixed for the convocation of the Li Fa Yuan. Thus due respect will be given to the Laws, and the foundation of the nation will be well laid.

While these legislative measures were being taken the position in regard to the relationship between the Central Government and the "Independent" provinces remained obscure. Although no formal truce seems to have been arranged, very little fighting took place. Both sides claimed some minor successes, but it was evident that there was a tacit agreement to abstain from any large scale operations pending a possible compromise. The position in Kwangtung gave rise to some apprehension. The loyalty of the Military Governor, General Lung Chi-kuang, was not doubted, but the fear was entertained that he might not be able to withstand the pressure of the revolutionaries. Owing to the censorship it was difficult to learn definitely what was occurring in Kwangtung, but the large number of people who fled from Canton to Hongkong and Macao, showed that the public feared an outbreak. The troops at Swatow and one or two other places revolted, and announced their intention to cast in their lot with Yunnan, Kweichow, and Kwangsi. In these circumstances General Lung adopted the discreet course of endeavouring to preserve the *status quo* as far as was possible.

No official negotiations were opened between the Central Government and the revolutionaries, but in many quarters efforts were made to find a basis for compromise. The Government, as mentioned earlier, received promises of support from many of the Military Governors, and on April 5 the *Peking Daily News* reported that the Military and Civil Governors, Defence Commissioners, Occupation Commissioners, and Commanders of Army Division of nineteen provinces had addressed the following telegram to the Government:—

We, Kuo-chang, Yao-lin, and others, have forwarded a telegram to Kwangsi signed by the high officials of nineteen provinces and the following is the text of the same:—

Advice for Kwangsi

"To General Lu, the Shang Chiang Chun, General Chen, the Defence Commissioner, and other gentlemen,—We have now received a clear Mandate cancelling the monarchy. The Central Government has "condemned" its own actions with the hope of restoring peace and tranquillity to the people. It has none other purpose than to effect the salvation of the people and the country. The present situation of our country has become more and more critical every day, and there is every reason to believe that great disaster may overtake us at any moment. Unless all the people of this country should act with one accord, the dismemberment of the nation cannot be averted. If the internal dissension and quarrel should continue outsiders will no doubt interfere; and if the nation should perish the blame will be on us. When we think of the situation we cannot help to shed our tears and break our hearts. You gentlemen, who have been actuated by patriotic motives to resort to extraordinary actions, have now obtained your objects because there will be no change in the form of Government, and the Central Government has employed again the services of men of experience and talents. It is therefore imperative that you should at once lay down your arms. Since the declaration of independence in your province we have not been able to learn the real situation there owing to the interference of communications of your Province with us. However it is not hard for us to guess what has taken place in your province. You may have maintained perfect order and peace, and you may have made excellent preparations to meet every emergency; but your merchants and traders will never be able to get rid of the anxiety of the misery of the coming war and devastation. They will always be in fear nor can they enjoy their food and sleep on account of the coming calamity. You must therefore think of the critical situation and the hard condition of the people, and put forth your efforts to work out their salvation. This is high time for you to cancel or withdraw the declaration independence, and to work together with us for the peace and order of the country. Thus the mind of the people will be settled, and the people will praise your wise decision, which will have great consequence upon this country. Although it is the power of the Central Government to administer the affairs of the State, you may hereafter give your suggestions regarding reforms which should be introduced in all branches of administration, and we, Kuo-chang and others, are also willing to consult with you and to hear your advices and counsels. We hope that we may have a strong and powerful Government. It is our duty to devise means to secure peace and tranquillity for the nation, lest outsiders should avail themselves of the opportunity to destroy our national existence. We have now expressed freely our opinions as we are in a common danger. We have also telegraphed to Yunnan and Kweichow serving them our faithful advice, and we hope that you will also give them advice, so that they may lay down their arms and be reconciled to us.

Advice for Yunnan and Kweichow

After sending a telegram to Kwangsi, we have also prepared the following joint telegram for Yunnan and Kweichow:—

"To ex-Chiang Chun, General Liu, ex-Defence Commissioner, Generals Tsai and others. When you gentlemen started the revolution we, Kuo-chang and others, sent you a telegram expressing our opinions in most earnest terms, and stating that should there be differences of political opinions compromise should be employed because as soon as a civil war should break out the people would be afflicted with all kinds of misery. However our faithful advice has not been regarded, therefore the districts in Southern Szechuan and Western Hunan have met with unusual calamity from the military operations. We are not going to discuss which side is in the right and which the wrong, but we will point out that before anything has been gained the poor innocent people in the south-west have already suffered great misery for several months. Now the Central Government has cancelled the monarchy which was about to be introduced, and consequently your original object has been realized. If you should continue to resist the Government it will prove that your declaration of patriotism and the love of the people is false, and that you have been actuated by a selfish motive for power and wealth. The situation is most critical and if you do not change your mind but continue to fight the Central Government the people will blame you should any untoward events happen. We, Kuo-chang and others, who are responsible for the protection of the nation, will do our best to maintain the union of the country. As old friends we have tendered our faithful advice, and we hope that you will lay down your arms in an early date so that the country will enjoy peace and order again. We hope you will not try to oblige others but will make your own decision regarding the matter. Should there be any difficulty you may let us know, and perhaps we may assist you to settle it.

A report was circulated on April 5 to the effect that Kuangsi had revoked its declaration of independence. This was refuted by a telegram signed by Lu Yun-ting and Liang Chi-chao which read as follows:—

> Yunnan, Kueichow and Kuangsi are united by working in the common cause to uphold the Republic of China. The report which has reached here stating that Kuangsi has formally cancelled its independence is not true. Kuangsi will never conclude peace with Yuan's government separately, nor will she trust the Peking government and cancel independence without the approval of Yunnan and Kueichow Though the province has received many telegrams from Peking requesting the appointment of representatives to attend the peace conference at Shanghai or Peking, so far only one reply has been given, i.e., Kuangsi declares that until Yuan Shih-k'ai resigns there is no chance of peace. This is the Kuangsi republicans' real attitude. We have never sent telegrams to Peking cancelling the Kuangsi independence.

The Kwangsi rumour was counter-balanced by reports that various provinces either had declared independence or were on the point of doing so, and that the anti-Government forces had regained possession of Suifu, Nachi and Luchow. From the confusing cloud of rumour one certain fact emerged on April 7—the secession of Kwangtung from the Central Government. In the circumstances no great surprise was felt that General Lung Chi-kwang had been unable to maintain the loyalty of the province. As already recorded local declarations of independence had been made in several parts of the province, and the forces at General Lung's disposal were insufficient to maintain his authority. Moreover rumours that a large number of Northern troops were to arrive by sea filled the people with apprehension, in view of the many reports that northern troops had committed grave excesses in the other localities to which they had been sent. As far as can be gathered from the somewhat conflicting and fragmentary information that has been made available the declaration of independence was not attended by any fighting as far as Canton was concerned. The exodus to Hongkong and Macao continued, however, as it was generally feared that the incidents which had attended former changes of government in Kwangtung would be repeated. As in Szechuan bands of robbers began to turn the prevalent unrest to account, and there was a justifiable apprehension that the potentialities of Canton to the looter might prove irresistible. One official of note, Mr. Tsai Nai-huang, Opium Commissioner, who a short time before had been appointed Director of Defensive Measures in Kwangtung, was executed as a punishment for recommending that Northern troops should be sent to overawe the province. General Lung Chi-kwang retained his post of Military Governor, and the Civil Governor also remained in office, but the direction of affairs seems to have been assumed by a kind of committee comprised of members of the two sections of the anti-Government party. Apparently there were divergencies of opinion in regard to the precise object for which independence had been declared, and reports reached Peking that these differences led to open conflict as a result of which several of the committee were killed.

What effect the secession of Kwangtung had on the Government's plans is not quite clear. A number of troops in the North were under orders to proceed to Kwangtung, but a difficulty arose owing to the reluctance of the China Merchants Company to permit their ships to be used for this purpose. However, some of the troops had actually started for an unknown destination when a fresh complication arose through Chekiang declaring independence. General Chu Jui, the Military Governor of Chekiang, had maintained perfect order in the province notwithstanding the fact that former adherents of the notorious Chen Chi-mei were doing their best to stir up trouble. Fear of the arrival of Northern troops seems to have led to the final overthrow of General Chu Jui and severance of connection with the Central Government on April 12. Apparently this action on the part of Chekiang was not taken in accordance with any understanding with the other provinces that had already declared independence. A Presidential Mandate on the situation in Chekiang, which was issued on April 14, was, according to the *Peking Daily News* translation, couched in the following terms:—

> To-day we have received a telegram from Chu Yin-kuang, Governor of Chekiang, to the following effect: "On the 12th inst. at 4 a.m. a number of troops and people suddenly rushed into the office of the Chiang Chun. In the time of disorder the Chiang Chun disappeared and his whereabouts have not yet been ascertained. Immediately I secretly sent police to give protection to my office, and when the day broke military officials and members of gentry, who were anxious for the maintenance of peace and order of the City, compelled me to assume the title of Tutuh. I firmly refused, but after a long consultation at 4 p m. the chief officials of various Government organs together with the representatives of gentry and merchants sent in again their joint request to me. Finally they requested me to retain the title of Governor and at the same time act concurrently as Commander-in-Chief of the Chekiang Army so that the peace and order of the locality might be maintained. As they did not allow me to refuse any more, I consented this morning to their request with the hope of controlling the soldiers and the people and maintaining peace and order. The mind of the people has now been settled and normal condition has been obtained, etc."
>
> The said Governor being a man of experience and ability has been highly respected by the troops and the people, and his services to the Central Government are indeed very valuable as he has saved the situation of Chekiang. He is hereby given the brevet rank of Chiang Chun, and is appointed to act as Director of the Military Affairs of Chekiang. At this critical time the said Governor has exerted his utmost to save the general situation by his energy and enthusiasm. It is hoped that he will be able to maintain the situation till the end, as he has already won for himself a great reputation and influence, and to assist in settling the situation of the country. He is hereby ordered to instruct the troops and the people, showing them the general situation of the world of to-day and urging them to love their country, so that they may understand that their duty is to obey the will of the superiors. Thus they will be able to secure peace and order for various localities. By the promotion of the interest of their native lands, they will at the same time serve the interest of the whole country. I, the President, have great hopes of them.

Early in the month a truce for a few days was arranged between General Chen Yi, Military Governor of Szechuan, and General Tsao Ao, the leader of the Yunnanese troops. This was afterwards extended to a month, and in the meantime endeavours were made to find some basis for a compromise. One section of the anti-Government was averse to accepting any terms that did not include the retirement from office of President Yuan Shih-kai, while another was prepared to agree to the President remaining the titular head of the State with greatly restricted powers. It was generally understood that the President was willing to make great concessions to meet the views of the Southerners, including the formation of a responsible Cabinet that would include several of their leaders. The negotiations, unfortunately, made very slow progress in consequence of the absence of a common understanding among the leaders in the independent provinces.

In spite of the disturbed state of the country, revenue, particularly from the taxes on salt, continued to flow into the Treasury satisfactorily. A sum of over $5,000,000, representing the surplus revenue from salt taxation after making provision for loan charges, was placed at the disposal of the Central Government, but the Yokohama Specie Bank, acting under instructions from the Japanese Government, refused to hand over the portion of this amount which had been entrusted to its care. This incident is dealt with in our editorial columns. As a result of the representations made by the Japanese Government it is understood that the British, French and Russian banks were instructed not to pay further sums available from surplus salt revenue until sanction had been obtained from their respective Governments.

The unofficial report that the formation of a responsible Cabinet had been decided upon was confirmed on April 21 when a mandate in the following terms (*Peking Gazette* translation) was promulgated:—

> It is a recognised principle that centralisation should be the policy of the administration as it establishes direct responsibility. In view of the necessity of promptly attending to the multitudinous affairs of the State, I the Great President some time ago assumed full control of the powers of administration and appointed a Secretary of State in order to assist me in the work of government. During two years I have been labouring with my utmost ability but the success achieved has been insignificant. Examining the root of this failure, I find that it has been due to the absence of a Cabinet and the consequent lack of direct responsibility. The fact that I have merely assumed the appearance of an unlimited control of all powers of the State has been the cause of dissatisfaction on the part of the people. In these circumstances I have decided to effect drastic changes with a view to a thorough and energetic reform. In accordance with Article 21 of the Constitutional Compact, the mandate for the organisation of a responsible government is hereby promulgated; and the Secretary of State is hereby authorised to take full control of the affairs of the State and to organise a

government with the Ministers of the Metropolitan Ministries as members thereof who are to be mutually responsible to and for one another. This is intended in the sense of a step towards the formation of a responsible government and the beginning of administrative reform. I hope that the members of the government to be organised hereunder will work unitedly and faithfully in order to remedy the difficulties of the day. In this I have great hopes.

Simultaneously mandates were promulgated, one on the organisation of the Government, the other placing the official system under the direct control of the Government, as follows:—

Mandate on the Organisation of the Government

Art. 1. The Government shall consist of Ministers of State.

Art. 2. The Secretary of State and all the Ministers of the Ministries shall be called Ministers of State.

Art. 3. The Ministers of State shall assist the Great President and shall bear responsibility;
The Secretary of State shall be invested with power by the Great President to take full control of the affairs of the State;
The Secretary of State shall counter-sign all laws and mandates issued and other documents connected with the affairs of the State.

Art. 4. All affairs of the State shall be decided and enforced at meetings of the Ministers of State at which the Secretary of State shall be the Chairman.

Art. 5. The Secretary of State may issue governmental orders within the limits of his power and authority or when specially invested with power to do so.

Art. 6. The State Department [Cheng Shih T'ang] shall be the central organ of the affairs of the State and under the control of the Secretary of State. Officials of the State Department shall be fixed by separate systems.

Art. 7. This mandate shall come into force on the day of promulgation.

Official System Under the Direct Control of the Government

Art. 1. The following bureaux and department shall be under the direct control of the State Department. Their organisation shall follow the provisions of their respective official systems:—

The Bureau of Law Compilation;
„ Important Affairs;
„ Civil Appointment;
„ Statistics;
„ Printing and Engraving;
The Department of General Affairs.

Art. 2. To each Bureau and Department shall be appointed a Chief who shall, under the direction of the Secretary of State, control the affairs of his Bureau or Department and supervise the officials thereof.

Art. 3. The State Department shall have eight Councillors of State, who shall, under the direction of the Secretary of State, consider and discuss all laws and mandates.

Art. 4. This official system shall come into force on the day of promulgation.

The attitude of General Feng Kuo-chang, the Military Governor of Kiangsu, had been from the outset a matter of doubt. While it was known that he was not inclined to join in any military anti-Government operations, and had, indeed, in effect aligned himself on the Government side, there were indications that he considered that a certain detachment would not be indiscreet in the circumstances. Consequently no great surprise was felt when a Reuter telegram from Shanghai dated April 21 reported that General Feng had announced the neutrality of Kiangsu on April 17. Some days later it was denied that General Feng had taken any steps in the direction reported.

On April 22 it was announced that General Tuan Chi-jui, formerly Minister of War, had consented to form a responsible Cabinet. Later on the following cabinet was announced:

Premier	Gen. Tuan Chi-jui.
Minister of War	Gen. Tuan Chi-jui.
Minister of Foreign Affairs	Lu Chen-hsiang
Minister of Interior	Wang Yi-tang.
Minister of Finance	Sun Pao-chi.
Minister of Navy	Liu Kuang-hsiung.
Minister of Justice	Chang Chung-hsiang.
Minister of Education	Chang Kuo-kang.
Minister of Agriculture and Commerce	Chin Pang-ping.
Minister of Communications	Tsao Ju-lin.

When this report closed on April 21 little progress had been made in the direction of the arrangement of a compromise.

General Tuan Chi-jui, Premier and Minister of War

Much doubt continued to exist in regard to the attitude of the Independent leaders on the question of the President remaining in office. Reuter's Correspondent at Chengtu in a message dated April 15 stated that he learnt on good authority that General Tsai Ao had expressed to General Chen Yi his willingness to agree that the President should retain office on condition that a responsible Cabinet was appointed and control of the Army given to the Cabinet. On the other hand the *Peking Gazette* reported on April 19 that General Chen Yi had sent a telegram to Vice-President Li Yuan-hung, Mr. Hsu Shih-chang and General Tuan Chi-jui in the following terms:—

"I beg humbly to report that I have delegated Liu Yi-ching and Lei P'ao to proceed to Yungning for the purpose of coming to a peaceful settlement on the basis of maintaining the present government. Reports have been received from my delegates, stating that in reply to our counter-demands, Tsai Ao states that Yunnan and Kueichow have telegraphed that they are not satisfied with article 1 providing for the continuance of the Great President in office. As to Kuangsi and Kuangtung, no reply has been received by Tsai Ao from these provinces owing to the interruption of the telegraphic service. Since the views of the opposing parties are so divergent, the prospect of a peaceful settlement is very remote. One shudders at the thought of our future. Chen Yi, being a man of little reputation, his words certainly carry no weight. It is therefore impossible for him to shoulder the great responsibility alone. Careful consideration has led him to the conclusion that the only solution is to get Kiangsu, Chekiang, Kiangsi, Hupeh, Hunan, and Shantung to take joint action for the purpose of actually and earnestly discussing with Yunnan, Kueichow and other provinces the question of a decision to settle the future. As the matter concerns the general situation as a whole, I beg that the Central Government should give this suggestion its support and appoint a central locality and at the same time issue telegraphic instructions to the Chiang Chuns and Governors of the provinces to send delegates to the conference. I further beg that general instructions be given in order that the question may be speedily settled. The situation is serious and every moment is precious. I respectfully beg that a decision be promptly made."

The same paper also reported that General Lu Yung-ting had sent a telegram, similarly addressed, in the name of himself;

Tang Chi-yao, Tutuh of Yunnan; General Tsai Ao; General Lung Chi-kuang, Tutuh of Kwangtung; Liu Hsien-shih, Tutuh of Kweichow, and Chang Min-chi, ex-Civil Governor of Kwangtung. This read as follows:—

"I have to acknowledge the receipt of three telegraphic communications which have reached me, contents of which I have persued with care and respect. Deeply struck by the sight of the dangers besetting the country and earnestly desirous of peace, you have expressed your views so forcibly that the words have stabbed my heart and have even reached my bones. Yun-ting may have little virtue but be assured that he cannot be insensitive to your appeal. I have delayed replying to your telegrams, because, the matter being of grave importance, I have had to consult and secure the views of Yunnan and Kueichow, who preceded me in the Righteous Movement, before a definite reply could be despatched to you. I am now in receipt of telegrams from the Tutuh of Yunnan and the Tutuh of Kueichow as well as from Tsai Sung-po [General Tsai Ao.] Substantially these telegrams state that Hsiang-cheng [the Chief Executive who is referred to by the name of his native district in Honan] has violated the provisions of the Provisional Constitution and thus he has invited war into our midst. As he has utterly disregarded his moral responsibility and therefore forfeited his dignity and honour besides abusing the trust of the country, the simple cancellation of the Imperial title is inadequate to satisfy in a perfect sense the expectation of the people and of foreigners so long as he clings to the desire to remain in his office of President. To persist in this desire can only increase the dangers of the country. However much we may wish to arrive at a compromise on the subject, we find that it is impossible for "this vital step" to be avoided. Yung-ting and others therefore humbly implore you to submit to Hsiang-cheng our request for his immediate retirement from the Presidential chair in accordance with the provisions of the Provisional Constitution so that Vice-President Li Yuan-hung may assume the authority of the State, issue orders for the cessation of hostilities, speedily convene Parliament and reform the internal administration. Our salvation from the destruction that is otherwise inevitable lies within this brief moment; and as Hsiang-cheng has avowed that he has no wish to convert the country into his private property, he surely will no longer hesitate to sacrifice the empty title of President for the sake of saving the people from the dangers of fire and water. A word from you. Gentlemen, will suffice to uphold the crumbling Heavens and in fear and trembling I await your orders."

At the moment of writing it is impossible to say whether this telegram is to be taken as a genuine expression of the views of the Independent leaders.

Quite a flurry was caused in the ranks of the Independents by the announcement early in April that a loan agreement had been signed in America by the Chinese Minister at Washington, Dr. Wellington Koo, and the banking firm of Lee, Higginson & Co., of Boston, New York and Chicago, the proceeds to go to the Central Government for the suppression of the so-called rebels. Lack of information caused many misleading statements to be published, among them being allegations that the loan was contracted upon most ruinous rates for the Government. As a matter of fact the loan was granted on terms of a surprisingly liberal character considering conditions in the outer world as well as in China, and that money was available to China at 6% with an issue price to the public of 97% secured on Treasury Notes, is the highest testimony to the excellent credit of the country—testimony which the Independents as well as the Government should be pleased to see tendered at this time. The loan was to have been an advance of $5,000,000 United States currency in connexion with an Industrial Loan which had been under discussion, but the full amount was not issued. A sum of $1,000,000 gold was transferred by the Bankers after the Mandate cancelling the Monarchy had been published, but as Kwangtung declared independence several days later and it was thus seen that the trouble in the country had not been settled by the cancellation the Bankers withheld any further advance.

The Independents in Shanghai, however, did what they could to emphasise their objections to the loan, and a telegram was sent to the American Minister in Peking, as well as to the State Department, Washington, on their behalf by Mr. Tang Shao-yi, one-time Premier, declaring that they would not recognise the agreement as valid. The protest came after the Bankers themselves had decided not to make the full advance, so virtually the warning was unnecessary.

The Central Government found finances becoming increasingly and tighter as April drew to a close, and the most serious problem confronting them was the one of money. Further advances from the salt revenue could not be looked for, provincial contributions were scarcely to be expected, and other avenues to capital seemed to be closed to them, placing the Exchequer in dire straits.

JAPANESE LOAN FOR MANCHURIA

To provide funds for the construction of the projected railways (53½ miles) between Ssuping-kia, a station between Mukden and Changchun, on the South Manchuria Railway, and Chengchiatun, in Eastern Inner Mongolia—the agreement for which was recently signed with the Yokohama Specie Bank—a loan of Yen 5,000,000 was floated in Japan between April 7 and 10. The Yokohama Specie Bank announced the particulars regarding the loan, which bears interest at 5 per cent. per annum and was issued at 86.50 per cent. The term of the loan is 30 years, the bonds to be redeemed by drawings after standing unredeemed for ten years. The railway, and the receipts from the railway, constitute the security for the loan. Japanese accountants and engineers will be employed, and all receipts from the railway when constructed will be lodged with the Yokohama Specie Bank.

SESAMUM GROWING IN INDIA

According to a forecast based upon reports received from provinces which contain on an average 78 per cent of the entire area under sesamum in British India, the total area so far reported for the present season is 3,167,000 acres as against 3,509,000 acres (revised figures) at this time last year, or a decrease of 10 per cent.

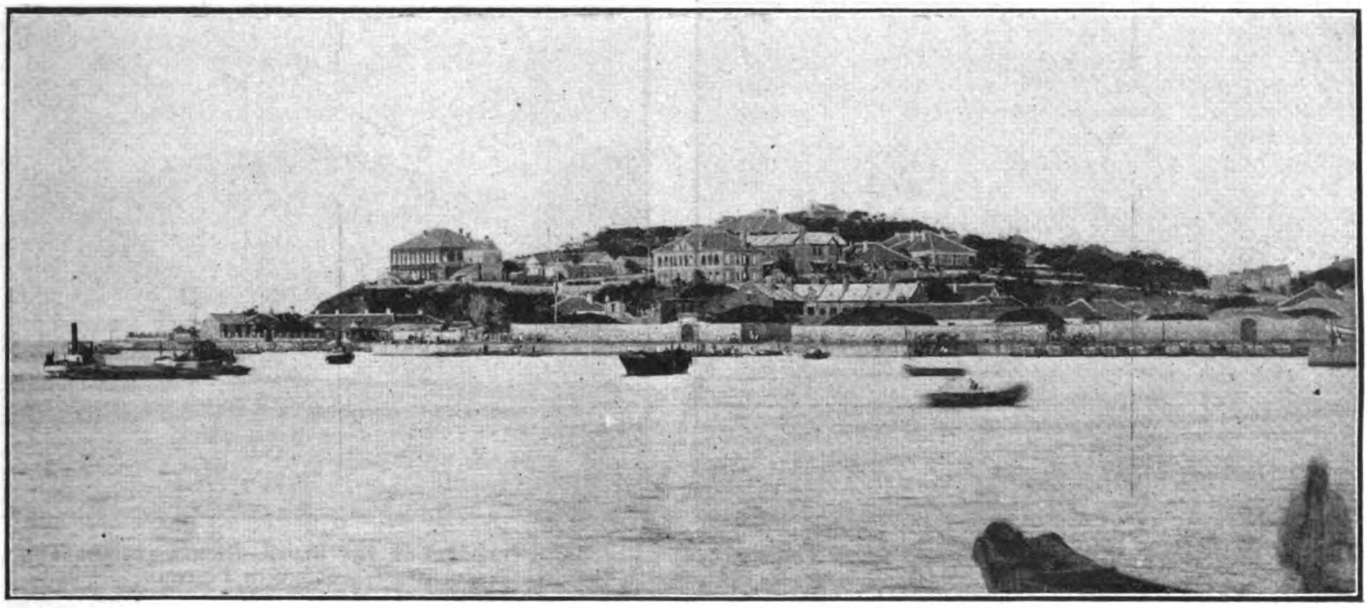
The crop was seriously damaged in early growth by heavy rain and floods in the eastern parts of the United Provinces and in parts of North Bihar, and by deficient rain in the western parts of the United Provinces, in the northern parts of the Bombay Presidency, and on unirrigated lands in the Punjab. The present condition of the crop is reported to be generally from fair to good.

MINING SUPPLIES IN CHOSEN

The former provision of the Chosen customs tariff allowing the free admission in reasonable quantities of machinery, apparatus, explosives, and chemicals imported by mining companies for use in gold, silver, and copper mining has been extended by an order including the free admission of all these articles, as well as basic crude ores to be used as solvents, when imported by refiners.

TURN TO CHINESE INDIGO

The price of artificial indigo in Hongkong has so far advanced, and that of the native Chinese indigo has so far declined, that the prices are practically the same at present, the result being that the Chinese turn to the use of the native dye because of its fast quality and particularly rich hue. English dye exporters are not making quotations for this market. Previous to the war, the trade was largely among German firms and with German dyes, but placed with the trade through British traveling men.



CHEFOO CITY—SHOWING PRESENT OPEN ROADSTEAD

IMPROVING CHEFOO HARBOUR

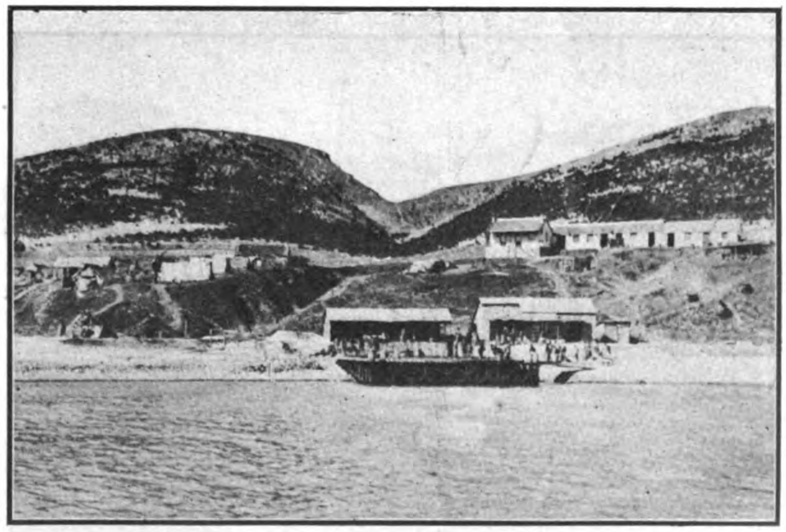
Construction of a Breakwater and Mole.

One of the most important engineering works which the Chinese Government is at present proceeding with is the improvement of the Chefoo Harbour. Lying as Chefoo does on the south coast of the Gulf of Chihli, and being exposed to the full force of the Northeastern storms, the harbour is anything but safe, and far from convenient, even in normal times. The anchorage being exposed to the prevailing winds the movement of cargo is always attended with difficulty, due to the fact that vessels must anchor in the open roadstead, without any direct connection with the shore and without any accommodation for the transportation of cargo to and from the interior. The loading, discharging and transportation of cargo between ship and shore can only be effected by cargo boats, with an average capacity of 15 tons, worked by coolies in fair weather. When gales prevail the movement of cargo is rendered impossible, causing considerable loss to shipping and merchants. To remove these disabilities and provide means for the proper handling of products from the interior, such as silks, fruits, farm produce, etc., a scheme for harbour improvement has been adopted and is now well under way.

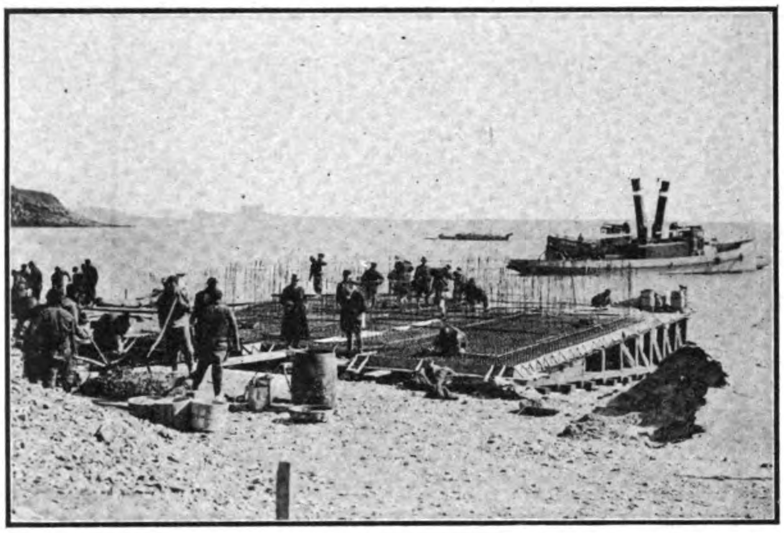
The importance of Chefoo has developed gradually since its opening as a treaty port in 1862. It was then a mere fishing village, but expansion of trade has caused it to become one of the chief ports of call for steamers plying between Tientsin and Shanghai. It also became the centre for the embarkation of Shantung emigrant coolies for Manchuria and Siberia, where they go to seek employment. The average number per year who thus set out in the spring and return in the autumn is 100,000, though large numbers remain in various parts of the country as permanent settlers.

During recent years Chefoo has suffered greatly by the competition of Tsingtao, which is connected with the capital of the province and with Tientsin by rail. Agitations have long been afoot for railway connection between the interior of the province and Chefoo, but chiefly owing to lack of capital no plan has materialized. Trade consequently failed to expand

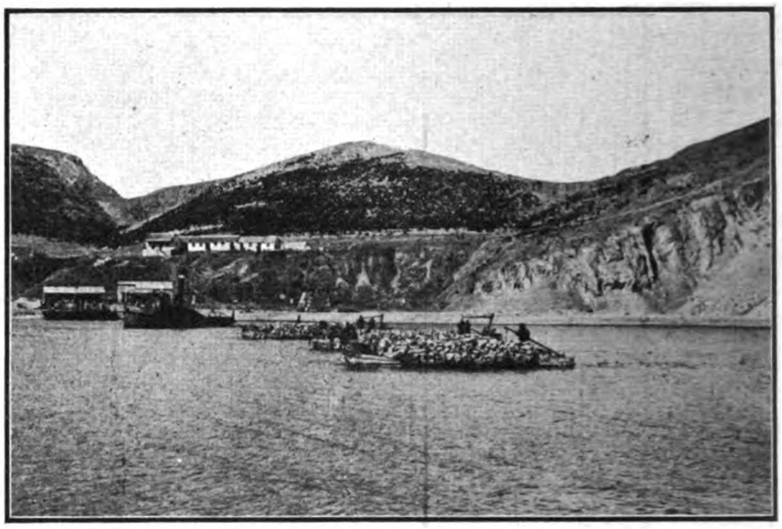
PILEDRIVER PREPARING FOUNDATION FOR SLIP FOR THE REINFORCED CONCRETE CAISSON—POWDER MAGAZINE ON ISLAND AT RIGHT



SLIP ON WHICH REINFORCED CONCRETE CAISSON IS BEING BUILT—COOLIE QUARTERS AND WAREHOUSES SHOWN IN BACKGROUND



CONSTRUCTION OF REINFORCED CONCRETE CAISSON TO FORM HEAD OF BREAKWATER



STONE QUARRIES ON THE BLUFF—STONEBOATS AND TUG PLACING STONE IN POSITION

along lines natural to it but despite this it totalled in 1912 Taels 34,400,583, consisting of Taels 21,536,852 in imports and Taels 12,863,731 in exports.

As the only essentially Chinese port worth developing on the north coast, and as the only one capable of competing with the port of Tsingtao, which was built up by the Germans and is now held by Japan, Chefoo has much to commend it to the consideration of the Government of China, and the regrettable feature is that the responsible authorities have been so long in recognizing the necessity of providing the facilities that should exist for shipping in an up-to-date harbour. Tsingtao, which is 200 miles south of Chefoo, has shown steady and remarkable progress both in shipping and trade—progress which must be attributed principally to the excellent modern accommodation offered. Tsingtao has its breakwaters, wharves and railway, and its prosperity proves the incalculable influence of the three essentials. The pity of it is that the Chinese have been so slow to recognize that their own port of Chefoo has suffered tremendously as a result of the rise of Tsingtao. Ships preferring a safe harbour—with facilities for handling cargo—to the open unprotected roadstead of Chefoo, with its primitive methods of lighterage, went more and more to Tsingtao, and as a result the products of the interior were attracted in increasing volume to this centre to the consequent loss of Chefoo.

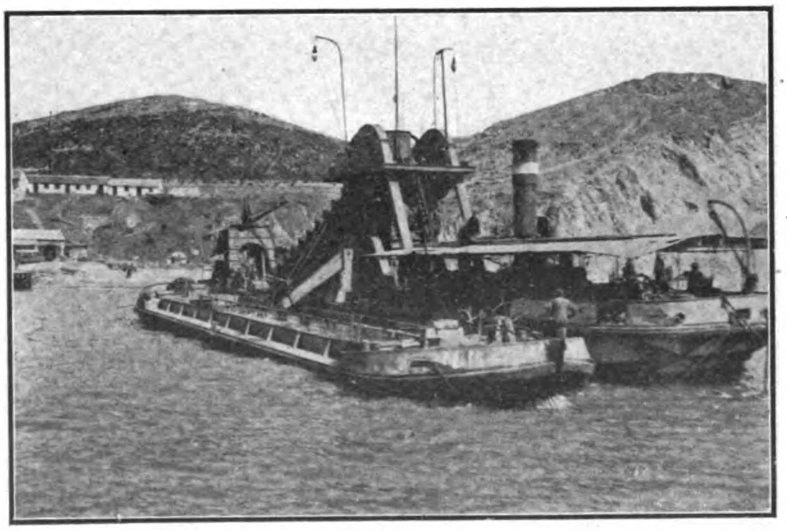
Whether the belated efforts now being made will enable Chefoo to recover its trade or not remains to be seen, but the natural vitality of the vicinity will, it is hoped, justify the expectations of those who have so long agitated for improvements, and whose wishes are now beginning to materialize.

In 1910 the Works Department of the Maritime Customs prepared a scheme for harbour improvement. This was one of several projects, but it provided the idea which has been embodied in the present plans, which were put into execution in 1913 under the aegis of the Chefoo Harbour Improvement Commission. This body was formally created to supervise the improvement work and consists of the Superintendent of Customs as Chairman, a representative of the Consular Body (the Senior Consul being nominated), the Commissioner of Customs (ex-officio treasurer), and the Chairman for the time being of the Foreign and Chinese Chambers of Commerce.

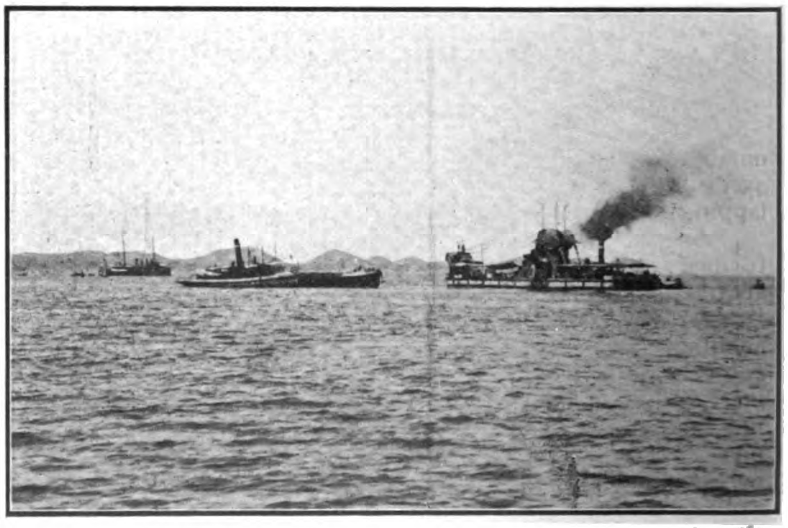
To cover the cost of construction a tariff of surtaxes was put into operation from July, 1913, under instructions from Peking.

Through the courtesy of the Government of the Netherlands, their Engineer, Mr. O. C. A. van Lidth de Jeude, C.E., was permitted to go to Chefoo to advise the Commission, on their request, as to the best means of providing the port with the protection it requires. Accompanied by Mr. B. van Exeter, C.E., he arrived in October, 1913, studied thoroughly the harbour conditions, and presented final plans in May, 1914. These plans were approved by the Commission, and by the high authorities; in July, 1914, a loan for the necessary funds was guaranteed by the Minister of Finance, and negotiations therefor were authorised.

Owing to the war, execution of the work and financial arrangements were postponed until the Commission, convinced of the urgent necessity to carry out the scheme, decided to call for tenders before May 31, 1915.



THE BUCKET DREDGE WITH A SELF-DISCHARGING BARGE ALONGSIDE



THE BAY OF CHEFOO—SHOWING DREDGER, TUGBOAT AND BARGE

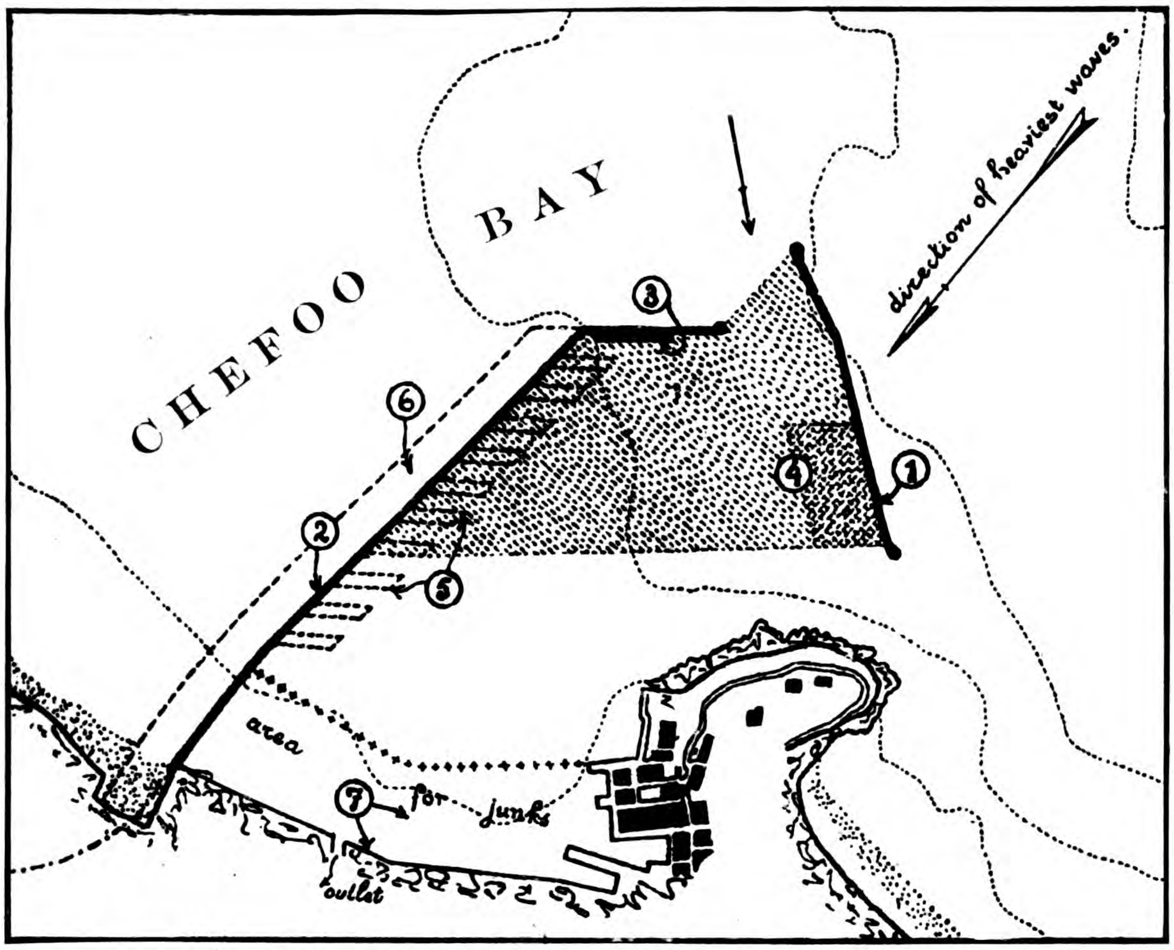
The offer of the Netherlands Harbour Works at Amsterdam was accepted and the contract, amounting to Haikwan Taels 2,677,000, was signed on June 9, 1915, actual work being started in the beginning of August, 1915.

The works to be executed consist of an eastern breakwater, a western mole, with quaywall, and dredging in the shelter formed by the breakwater and mole; these works to be completed in four years.

The breakwater, situated off Tower Hill, with a length of 2,600 ft., will protect the harbour, preventing the heavy north-eastern waves entering from the open sea.

The mole, giving further protection against the north-western waves, will be connected with the shore (and so with the future railway). On the northern part a quaywall will be projected 600 ft. where vessels can come alongside. The total length of the mole will be about 6,000 ft.

The eastern breakwater will consist of a foundation of rubble stone whereupon a wall of masonry in cement mortar will rest, with a caisson of reinforced concrete at each end Before the rubble is dumped a channel to receive this stone will be dredged to about 32 ft. below low water. The dredged material, being soft mud, is transported to sea. Upon the outer berm of this rubble foundation blocks of masonry, weighing about 4 tons, are to be deposited in regular rows to protect the rubble from being washed away by the waves breaking against the quaywall. The wall to be erected upon the rubble mound, will consist of blocks of masonry for the lower part, supported at both ends by the caissons as mentioned and of monoliths built in situ for the upper part. The blocks and caissons will be prepared on shore and be deposited in a bed of broken stone, to be flattened by divers. The blocks will be placed in sloping bond showing in cross-section, three rows: the outside row built up by three blocks, the inner row by four blocks. The monoliths will be surmounted by a parapet on the seaward side.



PROPOSED MOLE AND BREAKWATER AT CHEFOO

WORKS TO BE EXECUTED AT PRESENT: (1) Breakwater (2) Mole with (3) Quay-wall. (4) Dredging, darkly dotted area to 25 feet, lightly dotted area to 20 feet.

WORKS TO BE EXECUTED IN FUTURE: (5) Lateral piers. (6) Quay for tracks and godowns. (7) Improvement of existing works.

SCALE: About four inches to the mile.

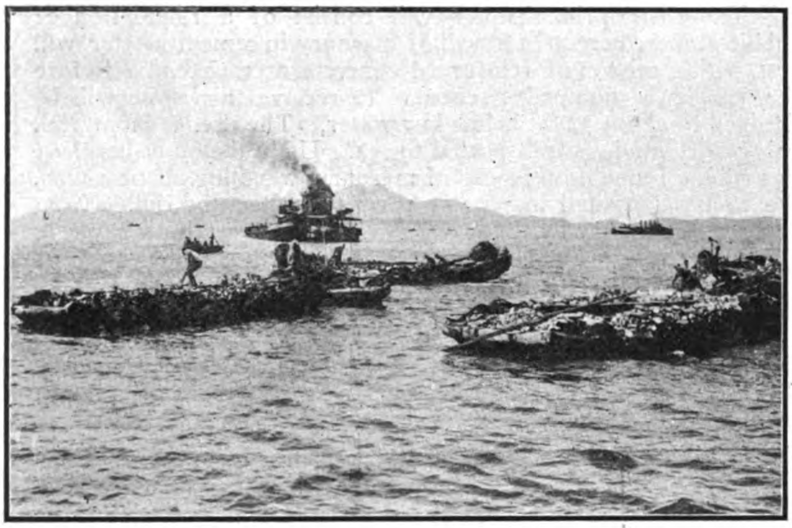
The main entrance of the shelter will be formed between the northern heads of the mole and the breakwater with a width of 450 ft. between foundations, and will be sheltered by the overlapping end of the breakwater.

A sufficient depth for shipping within the shelter will be formed by dredging about 22 ft. below low water over an area of about 100 acres.

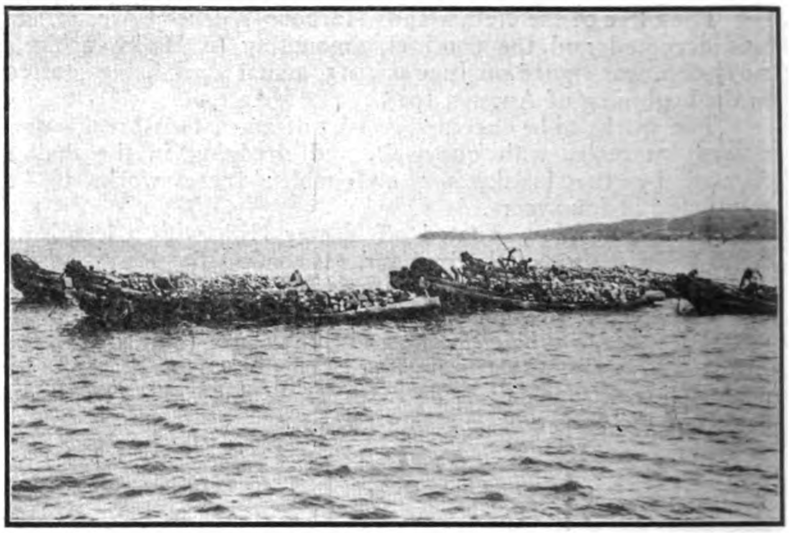
An area of 450 to 900 ft. is to be dredged to a depth of about 27 ft. below low water, offering an anchorage to ocean going steamers visiting the port. The area for anchorage may be increased to meet future expansions, the western mole offering the opportunity to construct wharves by building out lateral piers when required. The mole can also be enlarged to the west by reclamation, thereby forming a sufficient area for sheds and railway tracks, so that cargo may be transhipped directly from the steamers into the wagons and the sheds.

The western mole will consist of a mound of sand covered by clay, brushwood and stone, surmounted by a parapet of masonry. Before the sand is dumped a channel will be dredged in the mud bottom under the inner slope of the mound to reach the sand bottom. The lower slopes, the berms and the bottom under the toe of the outer slope, will be protected by mattresses of brushwood, covered with rubble. Upon the crown rails will be laid. The quaywall on the northern part of the mole will be of similar construction as described for the wall of the eastern breakwater and will be provided with fenders, ladders and bollards.

It is evident that for works of this magnitude many preparations must be made, and a big plant and machinery are required. The dredging plant consists of one bucket dredger, two powerful



JUNKS CARRYING STONE FOR THE RUBBLE MOUND UNDER BREAKWATER —DREDGER FORMING CHANNEL



JUNKS DISCHARGING STONE ALONG THE SITE OF THE EASTERN BREAKWATER

tugboats and four barges with which the channels under the breakwater and the mole have already been dredged for the greater part; while the dumping of sand to form the mound for the western mole has also been started. The daily output amounts in average from 3,000 to 4,000 cubic yards.

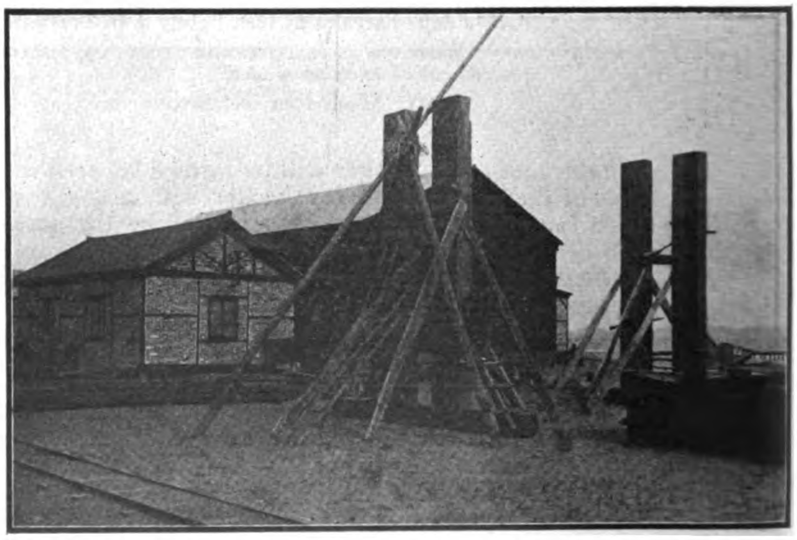
The channel under the breakwater has been filled partly with stone, transported in junks from the quarries on the Bluff to the dumping place, towed by a tugboat. A quantity of about 800 to 1000 tons of stone per day is to be transported in about 40 junks, weather permitting. The stone is blasted by dynamite, from 500 to 800 coolies being required for boring, blasting and carrying the stone in the quarries. A village of coolie quarters has been created in the vicinity of the quarries in consequence.

Another important work is under execution on the Bluff, namely, one of the caissons of reinforced concrete forming the heads of the breakwater. The floor and walls of this caisson are carefully built up on a strong slip. When the walls are completed to a height of about 10 ft. above the floor the caisson will be launched into the water, towed by a tugboat to a safe place in the bay where it will be anchored. While floating the walls will be built up over a height of another 15 ft. When completed the caisson will be towed to its place in the breakwater, sunk in the exact position and filled with concrete. The total weight of this caisson when filled will be about 2,500 tons so that there will be no risk that the strength of the waves will remove it. From an engineering point of view the construction of the caisson is most interesting and forms a vital part of the breakwater. Its completion will take several months.

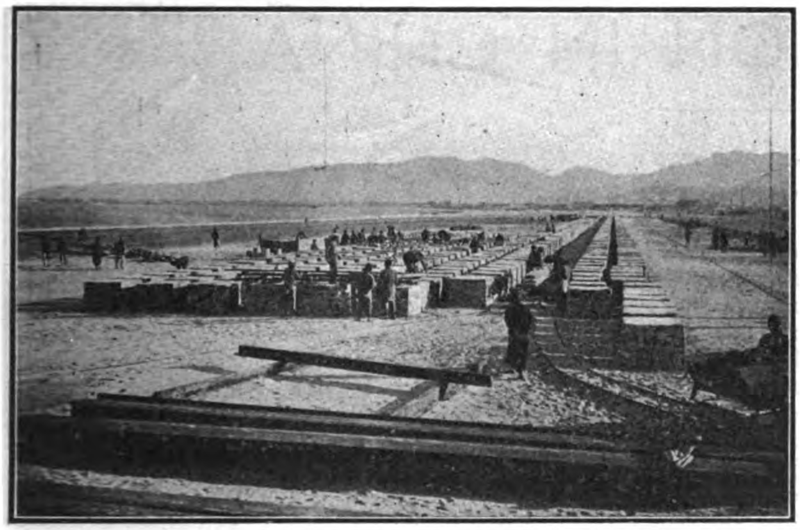
The principal preparatory works on shore are being executed on the West Beach where an extensive blockyard has been prepared for the manufacture of all blocks for the breakwater and the quaywall. The smaller blocks of 4 tons, of which 5000 are to be made, have been under construction since the autumn of last year; 1500 have been completed.

The large blocks forming the walls of the breakwater and quaywall have a maximum weight of about 33 tons. About 4600 are to be made, work being started in the spring of this year. The blocks are being placed in regular rows and over the full length of the blockyard heavy rails have been laid on a solid foundation of concrete to carry a travelling crane to lift the blocks and to put them upon blocktrucks. These blocktrucks have to carry the blocks to a blockjetty, made on the shore, upon which a powerful crane with gear lifts the blocks from the trucks and puts them on lighters which are to be towed to the breakwater. A floating crane lifts them into the water in the right position which is controlled by divers. It is evident that for the handling of these heavy weights extremely powerful machinery is required. At the end of the blockyard godowns, workshops, dwelling house, carpenter shop, coalyard and water supply have been erected. The godown for cement contains 3,000 to 5,000 casks, the godown for stores contains steelware, rope, etc., all kinds of articles and spare parts in large quantities. The workshops are divided in two parts, one for the blacksmiths and one for the fitters, equipped with all necessary machinery and tools.

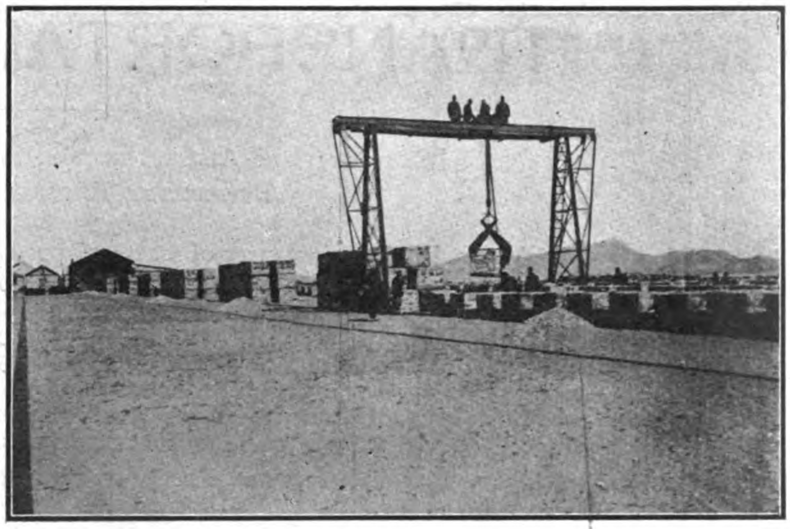
BLOCKYARD AT THE WEST BEACH—SHOWING BLOCKS OF 32 TONS UNDER CONSTRUCTION



CARPENTER SHOP AND GODOWN—TRAVELLING CRANE FOR LARGE BLOCKS UNDER CONSTRUCTION



Concrete Blockyard on West Beach—Showing Construction of Small Blocks



Travelling Crane Lifting Small Concrete Blocks on the West Beach

The coalyard has a capacity for at least 4000 tons and is connected by a small railway with a jetty on the beach. This jetty has a length of over 1000 feet, and the water at the end of the jetty offers a sufficient depth for the tugboats. A double track has been laid on the jetty which is used daily for discharging and transporting cement, coal, stores, etc.

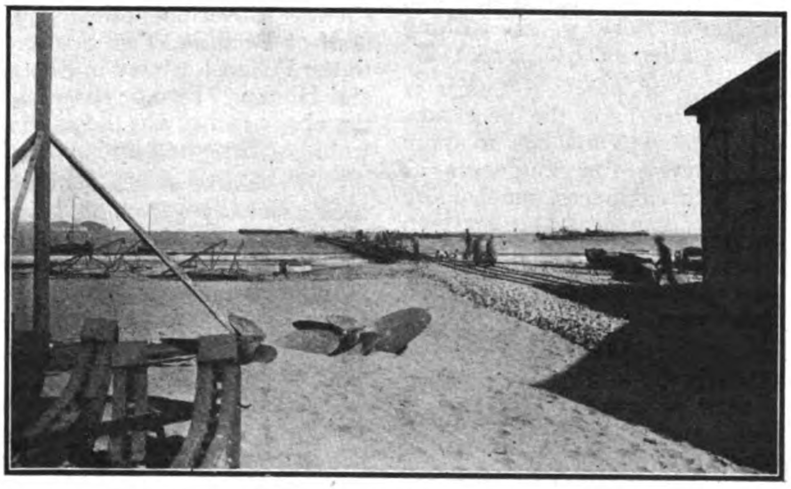
In the vicinity of these installations the mattresses of brushwood are prepared on the beach. About 250,000 bundles of brushwood have already been stored there and this quantity is gradually increasing, the total consumption being over 2,000,000 bundles. The mattresses—so-called "zinkstukken"—being a special Dutch work, are made on the beach to be floated, and at high water are towed to their place at the site of the western mole, where they are sunk in the right position by ballasting with stones.

To carry out the various works on the west beach a large crowd of coolies is required, and the aspect at present is that of an ant heap. The works on the beach are under the supervision of the superintendent, who lives on the spot.

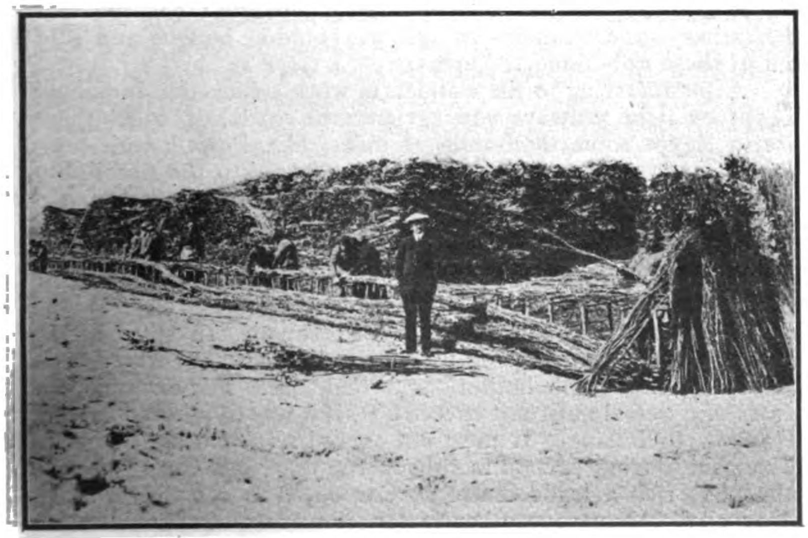
Up to now operations have been carried on at full speed and activity will increase when, within a few weeks, the suction dredger, tugboats, barges, pile-drivers and floating crane will have arrived to complete the plant already present.

The works are managed by a technical and a financial manager, two or three civil engineers, and a further foreign staff of eleven members.

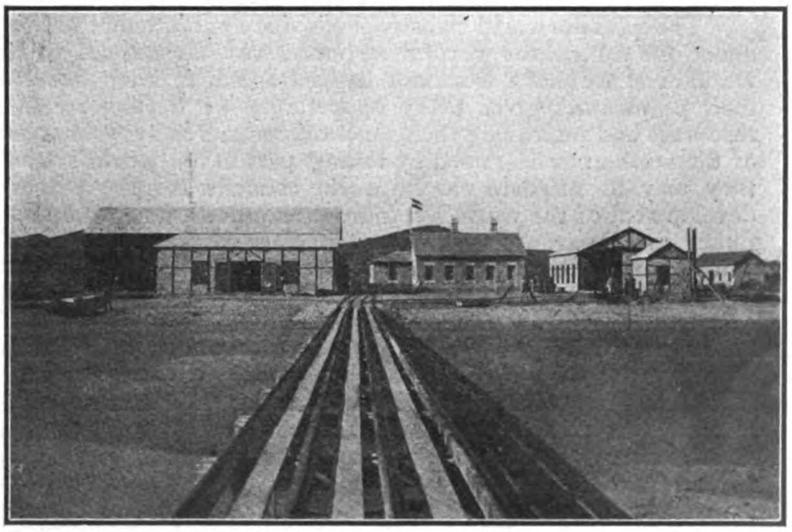
Since the building of this breakwater, mole and quay wall, together with the dredging operations, will convert Chefoo from an open roadstead into one of the safest and most convenient harbors on the coast of China, the mercantile community, not only foreign, but Chinese, is preparing for much greater volume of shipments than in the past, and, according to frequent notices in the Chinese Press, the Chefoo-Weihsien Railway project must soon become an actuality instead of as now, an indefinite prospect. The hinterland of this portion of Shantung province is exceedingly rich in agricultural products and proper shipping facilities are expected to lead to great extensions of cultivated land.



Jetty on West Beach Looking Toward Bay



Bundles of Brushwood stored on West Beach—Coolies Preparing the Wood for the Mattresses



Landward View of Jetty—Showing Godowns, Workshop and Dwellings on the West Beach

TRANSPORTATION IN CHINA

[Extract from Address by Mr. Sidney J. Powell, A.M.I.C.E., F.R.G.S., Before the Engineering Society of China]

China is full of heart-breaking instances of waste of power and misdirected energy, which, under an honest and really patriotic administration, could be turned by engineers into channels of national content and wealth. When one has actually seen what has been done in countries like Egypt and India by railways and improved waterways, in bringing contentment and well-being to the inhabitants, to turn to China and see her infinitely superior resources running to waste makes one despair.

The world now is too much everyman's land for China to stand out. Transportation facilities have opened the whole world up to universal trade. It is for China to do her own developing. If she does not do it herself, it will be done for her.

While there is yet time, let her do it herself by honest administration of funds for the country's welfare; if not, she will lose inevitably those "sovereign rights" of which she is so tenacious, but which she has no right to retain if she does nothing to deserve them. It is modern justice, and modern justice will prevail.

No country in the world, calling itself a civilized country, has such poor means of transportation as China, and this is the result of China's attitude in the past towards Western nations. Whilst the West has been for the last two centuries hurrying up the passage of people and merchandise from point to point, China has stood aloof, content to let the outer world go on rushing about while she drowsed on and lived on her means.

To get paying results a knowledge of practical things is absolutely necessary and the Chinese have not the necessary technical knowledge, or, rather, do not as yet know how to apply that knowledge. The Chinese have very few engineers at present, but they have a great respect for engineers, much more so than for commercial men, whom they can beat at their own game. They realise that technical men know something and apply their knowledge in a way which, in its results, is startling to a people who have been used for so many centuries to getting about on foot or in wheelbarrows and to grinding their corn and weaving their cloth by hand power.

There have arisen in China many enlightened Chinese who know now that it is the duty of their nation to take their place in the world in endeavoring to improve the lot of the struggling agriculturist and merchant who have been handicapped so much by the lack of means of getting the result of their labors on to a market. A nation which takes no pains to improve the lot of its inhabitants is doomed to extinction nowadays. They must all come in or go under.

The present world catastrophe is due to an attempt to bring under one control the world's resources and the nations of the world must see that this cannot happen again, making sure that their peoples are given every opportunity of developing their resources and improving their position commercially, so that, out of the wisdom to be gained by taking part in the world's trade, they may be fitted to aid in world councils for the peaceful development of the world's resources and, in the unity of opinion thus gained, prevent any upstart taking advantage of the world's confidence. The only protection against war is a healthy and prosperous population. China is a very long way behind in the question of the amelioration of the masses, the sufferings of some of her population are intense. The industrious poor in Europe have opportunities for betterment provided for them—those in China hardly any, and the way to provide forthe betterment of the masses is to provide them with cheap and speedy transportation. This can be effected by railways and improvement of waterways for boat traffic.

After referring to the number of utilities created by railways, the production of raw material and the concentration of finished goods which they make possible, Mr. Powell pointed out that the railway systems at present working in China covered a mileage of over 4,000 miles and there were some thousands of miles under construction or projected. Some of these existing railways had been built at great cost and were over-capitalized, largely owing to the ridiculously high cost of obtaining permission to build them and this, whilst an evil and tending to arrest development, had its bright side in proving that railways in China are paying concerns despite adverse financial conditions. If they were not, there would not be such a scramble to get and pay for concessions to build them.

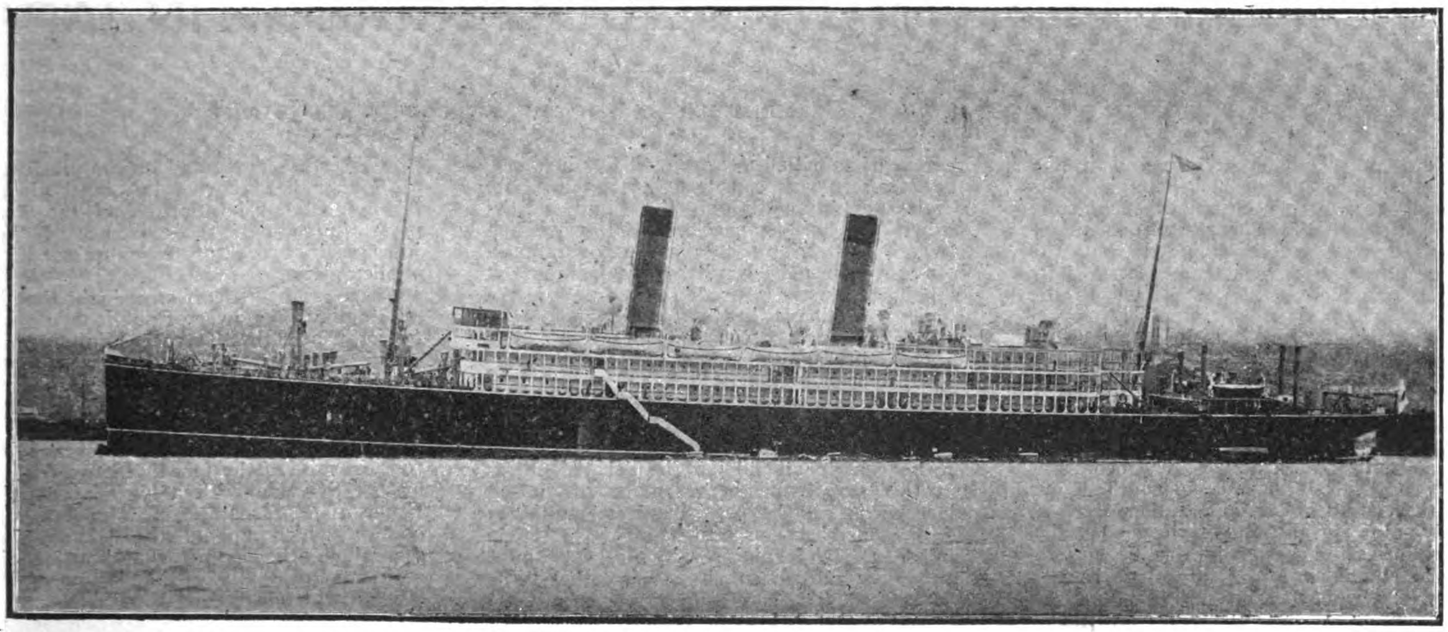
Mr. Powell then proceeded to speak of a number of rich districts which might greatly be benefited by having narrow gauge railways built as feeders to the existing regular (4 feet 8½ inch) gauge railways or to the waterways. These narrow gauge feeder railways only cost from £800 to £1,000 per mile as against about £10,000 per mile for the broader gauge road and the light gauge road could carry, if worked up to its fullest efficiency, as much traffic as any railway in China was at present carrying. When the light railways began to approach their full carrying capacity they could be converted into wide gauge roads, and the latter given double tracks.

He advocated two or three such railways connecting the rich pastoral district north of the Great Wall in Chihli, to feed the Chinese Government Railway which runs along the coast of the Gulf of Pechili. Two or three in Northern Shansi, connecting to the Pehan Railway in Shansi and the main trunk line in Chihli and Honan. Two or three in Southern Shensi, connecting with the above railway at the capital Sianfu. Every province in fact would be benefited by having these inexpensive railways.

It could be an excellent object lesson for the rest of China if such a railway were built from Wuhu to Shanghai. This railway could bring most of the down river traffic into Shanghai, cutting off the roundabout route via Chinkiang—avoiding the dangerous passage through the quicksands at the Lanshan Crossing and the navigation and heavy pilotage charges up the Whangpoo to Shanghai. Such a railway would effect a saving of at least two days in the down journey from Hankow.

Another instance of the lack of economy in transportation in China, the lecturer said, was the way in which cargo was handled at Shanghai, Tientsin, Hankow, etc., especially in respect of the amount that went backwards and forwards over the foreshore when sold to an up-country buyer. The remedy was that the railways should be connected to the wharves and should have large areas with bonded godowns and open storage places to which all their roads would connect and the cargo that the railways and steamers brought in should be bought and sold out of these rail-connected areas.

After referring to the wonderful work achieved in India and Egypt by light railways and agricultural roads, of which there are in Egypt some thousands of miles, Mr. Powell dealt with water transportation; and, in passing, referred to the possibility of installing hydro-turbines in the Yangtze Gorges, which would furnish power for operating locks and supplying cheap power for railways in central China; such works being combined with locking facilities on the river itself, thereby removing the great navigation dangers and opening up a great waterway to the richest province in China, namely Szechuan. In spite of the natural advantages enjoyed by China in the matter of waterways, there were intolerable limitations to their use. For example, the draft of a vessel must not exceed 6 ft. if it was to proceed beyond Hankow to Ichang. It must not exceed 2 ft. if it was to get to Changsha during several months of the year, and Changsha was almost as rich a trade centre as Canton, it is certainly a much finer city. Numerous other instances were quoted, pointing to neglect of opportunities which if taken might prove of inestimable advantage.



THE PALATIAL TOYO KISEN KAISHA LINER CHIYO MARU SHORTLY BEFORE HER UNTIMELY END ON THE ROCKS OFF HONGKONG

THE WRECK OF THE CHIYO MARU

The Chiyo Maru, one of the three big T.K.K. liners, carrying 229 passengers, went aground on the rocks of Lema Island, eighteen miles off Hongkong, in a dense fog at 4.30 a.m. on March 31, and despite efforts of a fleet of salvage vessels has broken in two and has been abandoned. It was seen at once that the vessel was badly damaged, as her oil tanks were punctured by the rocks. The weather conditions prevailing made salvage seem an impossibility but hope was not given up until the vessel's back broke in two, six days later.

The Chiyo was on the way from Manila to Hongkong and apparently was somewhat ahead of her schedule time. The route which she was taking as she neared Hongkong is a new one used since the beginning of the war and is by way of Lion Pass instead of the Green Island channel on the other side of Lema Island. The fog prevented seeing any distance ahead and the liner crashed into a ledge of rocks on the south side of the island.

Passengers who were among the last to leave the ship and who had time after the first fright of shipwreck had passed, to examine the vessel's location, say their escape was almost miraculous as the liner struck a narrow ledge of rocks on which she wedged fast. Ten yards to either side and her bow would have crumpled up against precipitous cliffs with more than 50 fathoms of water at their base. The boat ran sixty feet over the ledge of rocks, which is an indication that she was going at a fairly good speed.

The passengers were asleep at the time of the shock. A wireless message asking for aid was sent out at once and the British destroyer Whiting came immediately. Most of the passengers were transferred to the destroyer at once, as far as is known here, and they were immediately taken to Hongkong. While press report gave credit to the passengers for courage, some of those who were lowered in boats soon after the accident saw they had need of fortitude as their boat hung against the side of the ship for more than an hour while the crew tried to fit the rudder and the overlocks.

The Chiyo was in command of Captain Bent, for many years a skipper in the T.K.K. service, who was on his second voyage with the boat. He succeeded the late Captain Greene who was recently transferred to the Tenyo. Although Captain Bent has made in public a statement regarding the cause of the accident, some of the shareholders of the T.K.K. stated they were inclined to blame Captain Bent as despite a dense fog and the difficulty of the approach to Hongkong, the steamer was running at the speed of 14 knots an hour. Passengers stated that the Captain had given orders that he must be called immediately if any fog were encountered, and that the ship was kept at high speed by the Japanese officer in charge despite the fog and the difficulty of the new passage into the harbour. The vessel was five miles off her course.

The Chiyo Maru was a triple-screw turbine steamer of 22,000 tons, the same in type as the Shinyo Maru and the Tenyo Maru. She was built in 1908 by the Mitsubishi Dockyard and Engine Works at Nagasaki and was made to conform with Lloyd's requirements and the regulations of the Japanese government. Her maximum speed was 21.6 knots an hour.

With the Chiyo out of service the T.K.K. will suffer much financial loss and many passengers planning to cross the Pacific will be occasioned much delay. The shortage of vessels for both freight and passenger traffic on the Pacific is keenly felt just now. The statistics given in the report of the T.K.K. at its recent general meeting show that the profits of one voyage to America and return for a vessel of the type of the Chiyo is approximately 350,000 yen. There was a large list of passengers to be taken on at Hongkong and about forty passengers had engaged passage at Yokohama. This means that the Chiyo would have carried a capacity passenger list with four or five persons to the cabin. Passage across the Pacific just now is not easy to get and space in the larger liners is now practically reserved far into July. The disaster to the Chiyo will tend to make the situation worse.

Of the 4,800,000 yen, the original cost of the vessel, 3,351,000 yen has been paid. The insurance upon the vessel is reported to be 3,950,000 yen, of which 3,150,000 yen is on the hull and engines and 800,000 yen on her equipment. The companies concerned are the Tokyo Marine and Lloyds.

25 YEARS OF CONSTITUTIONAL IMPERIALISM IN JAPAN

[ADDRESS BY PROFESSOR E. W. CLEMENT BEFORE THE ASIATIC SOCIETY OF JAPAN]

Readers must not expect to find in the Japanese political system such popular rights and privileges as they enjoy, or such as the English enjoy, under a constitutional monarchy. It must be remembered that the Japanese Constitution was framed principally from German models, as best suited to the conditions in Japan at that time. The American Republic and the British Empire were too radical in their political constitutions to be followed by a nation emerging from centuries of feudalism and absolute imperialism. The modifications of imperialism could not be too extreme or too sudden but must be slight and gradual. The people, as a whole, must be educated up to the point where they could understand and appreciate, not only political rights and privileges, but also political duties and responsibilities. Fukuzawa, the great commoner of Japan, once wrote as follows: "Owing to the peculiar customs which have for so long existed, we are not at all sensitive about our privileges and our rights." The Japanese people needed to be gradually educated up to an appreciation of popular rights and duties. Thus the Constitution was to be, in a sense, the schoolmaster to lead them to constitutionalism.

The Imperial Prerogative

The sovereignty of the Emperor is the fundamental principle of the Japanese Constitution. Article I reads as follows:

The Empire of Japan shall be reigned over and governed by a line of Emperors unbroken for ages eternal.

The late Prince Ito, the chief compiler of the Constitution, in his "Commentaries on the Constitution of the Empire of Japan," says of this article: "It is meant that the Emperor on his Throne combines in himself the sovereignty of the State and the government of the country and of his subjects."

The "divine right of kings" was carried to such an extreme in England that Charles I. lost his head; but, in Japan, the "divine right of the Emperor" is acknowledged to a degree of which no Stuart ever even dreamed. Uyehara, in his "Political Development of Japan" sets forth that very vividly and asserts that the Emperor of Japan can use "more effectively than Louis XV" the latter's famous expression "L'état c'est moi."

It is really unthinkable that any Japanese Emperor could ever suffer the fate of Charles I of England. It was this idea of Imperial sanctity that made people discredit at first the report of the anarchist conspiracy of 1910. It must, however, be acknowledged that even the Emperor is not always exempt from being the subject of discussion. And yet, on the whole, he is generally considered sacred, so that attempts to drag him into politics are resented. An apparent attempt to utilize an Imperial Rescript by the new young Emperor for partisan purposes is believed to have ruined Katsura's last ministry in 1913. And the failure of Saionji at that time to make the Seiyukai yield to what was said to be the Imperial desire in that case is thought to have compelled him to give up the leadership of that party and retire to private life.

Dr. McLaren, in a lecture before the Asiatic Society of Japan, spoke as follows on this point:

"The tremendous prestige of the Imperial name had been used continually for the defense of the government. . . . The divine descent of the Monarch had been made to bear the whole burden of the oligarchical form of government. . . . The oligarchy and the monarchy had been merged into a single governing power, which continued to exist through the reverence of the people for the Throne.'

This idea of the sacredness of the Imperial name has given rise to some ridiculous instances of so-called *lèse majesté*. For instance, the Ministry was censured in 1893 "for its carelessness in maintaining the dignity of the Crown." What happened was that an English lawyer, counsel for the Japanese government, in a case before the English consular court at Yokohama, merely used the name of the Emperor in his plea!

There is one peculiar constitutional provision which requires special notice under this topic of "The Imperial Prerogative." The Constitution cannot be amended unless a project to that effect is submitted by Imperial Order to the Imperial Diet. Then, in neither House can an amendment be debated unless two-thirds of its members are present, and no amendment can be passed unless two-thirds of the members present approve (Article LXXIII). Ito explains why the Diet cannot initiate an amendment by saying that "the right of making amendments to the Constitution must belong to the Emperor himself, as he is the sole author of it." But, just as the late Emperor, now known as Meiji Tenno, granted the Constitution in response to a desire or a demand, so doubtless any prudent Emperor will heed public opinion with reference to amendments.

It may be said, in general, concerning the Imperial authority in Japan, that, while nominally and theoretically it is not limited, yet practically it is somewhat limited. Uyehara says:—

"Neither custom nor law, written or unwritten, nor the Constitution limits his ultimate sovereign power. He is the Supreme Lord and Absolute Master of the Empire."

Yet the Emperor does not interfere in the actual administration of affairs; he reigns but he does not rule. The late Emperor took a deep personal interest in the affairs of State, but never showed the slightest desire to exercise "personal rule." It is, therefore, not difficult for an Emperor, unless he is a man of strong personality, to be at the same time an "absolute monarch" and an absolute figurehead. That was often the case in old Japan; and it is not an impossibility even in New Japan. Uyehara affirms most positively that "it is not the personality of the Emperor . . upon which the strength and the value of the Japanese monarchy chiefly depend," and he claims that it is "the unique history and tradition of the Imperial Throne." But we make bold to say, even in opposition to a Japanese, that the personality of the Sovereign is of special importance. It is possible that, in general, the Imperial personality weighs more than the individual personality. But, in the case of the late Emperor, Meiji Tenno, his own personality, in the sense of his individuality, was no small element in the loyalty and patriotism of thousands of his subjects. And it is not an indivious comparison to state that the feeling toward the present Emperor does not seem as yet to be the same as that toward his illustrious father, Mutsuhito the Great.

Public Opinion

One of the most significant phases of the political progress made in New Japan during the past 25 years of constitutionalism has been the development of an expressive public opinion. During the feudal system, there was, from one point of view, no public opinion; or, at the best, it was very narrow and local in its sphere of action. But along with the granting of popular rights and privileges, with the spread of education, with the growing importance and power of the press there has been a most gratifying evolution of public opinion. It is true, "and pity 'tis, 'tis true," that often the most evident manifestation of that opinion has been in mob violence. But, in spite of that unfortunate, though perhaps inevitable, concomitant, public opinion, as expressed in the press and on the platform, can no longer be ignored, but must always be taken into consideration. And the Japanese press, in spite of the existence of "yellow journals," is a creator and expressor of sound public opinion.

There can be little, if any, doubt that it was nothing but the power of public opinion which overwhelmed the Katsura Ministry in February, 1913, after less than two months of official life. And it was likewise the fact that public opinion held the Yamamoto Ministry responsible for the naval scandals which forced that Cabinet out of power in March, 1914, in spite of the fact that it was supported by the Seiyukai with a big majority in the House of Representatives. And it was public opinion which upheld the Okuma Cabinet several months against that hostile Seiyukai majority and finally, in the election of March, 1915, completely turned the tables and gave Okuma a big majority. Of course, public opinion is likely to be more or less fickle and sometimes even unjust. In 1913 the Seiyukai members of the House of Representatives were the popular idols on account of their resolute opposition to Katsura; in 1914, because they supported the Yamamoto Cabinet, they were in danger of suffering personal indignities at the hands of a mob, and had to be specially protected from violence. Verily, the populace are iconoclasts as well as hero-worshipers.

It goes without saying that public opinion in Japan would be more powerful, as well as less violent and more regular, if a larger number of people possessed the electoral franchise. The number of electors has, it is true, increased considerably in 25 years, as may be seen from the following statistics:

1890	453,474
1892	460,914
1894	464,278
1896	467,607
1898	501,459
1902	983,193
1904	737,788
1908	1,558,676
1912	1,550,978
1915	1,546,241

The increase in 1902 was due to the lowering of the property qualification. The decrease in 1904 was due to the lowering of the land tax. The increase in 1908 was due to the extension of the electoral franchise to the Hokkaido and several new urban districts. The increase in 1915 was due to the extension of the franchise to Okinawa prefecture.

One discouraging feature has been that so many of the electors did not exercise their privilege. An improvement in this respect would doubtless follow the complete establishment of party government and a wider extension of the franchise. The election in March, 1915, indeed showed a marked improvement. Whereas the average rate of non-voters among the electors was almost 12 per cent in 1898, almost 14 per cent in 1903 and 1904, over 14 per cent in 1908, and over 10 per cent in 1912, in 1915 it was only about 8 per cent. These figures are eloquent.

The following are the full statistics of the election of 1915:

Number of electors	1,546,241
,, ,, non voters...	121,548
,, ,, voters...	1,424,693
,, ,, invalid votes	7,557
,, ,, valid votes...	1,417,136

These figures show that a larger proportion of the electors than ever before appreciated the value of the "precious one vote."

Woman's suffrage is fortunately not yet an issue in Japan; but universal male suffrage has been discussed. A bill to that effect once passed the House of Representatives but was

shelved in the House of Peers. Indeed, it may not be wise to pass too suddenly to such an extreme as universal suffrage; it may be better to extend the franchise gradually by reducing the amount of the tax qualification required for eligibility to vote. It is hoped that the Okuma Cabinet, if it survives till the next regular session of the Diet in the winter of this year (1916), will introduce an electoral reform bill to round out the quarter-century of Constitutionalism in Japan.

It is certainly desirable to ascertain what conclusions and inferences may fairly be drawn from what has been recorded above. In the first place, it is quite evident that when one writes of the government in Japan a capital "G" should be employed. There is nothing small or weak about the administration, whether national, provincial, municipal, or what not. It all centers about the national administration in Tokyo; it is a case of centralization; it is a centripetal form of government; it gravitates around and toward the Imperial Palace in Tokyo. It was with good reason that Dr. W. E. Griffis called his first great work on Japan "The Mikado's Empire;" for the Empire belongs to the Emperor. And it is also with good reason that Dr. Griffis gave the title of "The Mikado" to his most recent work. Moreover, a book, "Japan to America," compiled by Mr. Naoichi Masaoka, and published by Putnam (1914), includes a contribution of a few pages by Mr. Itchiro Tokutomi, the able editor of the Kokumin Shimbun, Tokyo, on "Centripetal Mikadoism." We quote here some of Mr. Tokutomi's expressions:

"But our imperialism, our democratism, our socialism—all these centre upon a single principle and it is 'centripetal Mikadoism,' as we express it and advocate it. Rome was at one time the center of the Roman Empire; hence the adage, 'All roads lead to Rome.' In a like manner the Mikado is the center of our nation. Considered as a body politic, it has him as its sovereign; considered as a distinct race, it has him as its leader; considered as a social community, it has him as its nucleus. Who can, then, contradict me when I say that all our 'isms'—social, racial and political—are included, involved, implicated, by this 'centripetal Mikadoism?'"

And he attributes Japan's "great socio economic revolution" to the "automatic process" of that "centripetal Mikadoism."

Another natural inference from these studies is, that custom is more powerful than law. Or, to express the idea in another way, it takes a long time for a new law to establish itself against an old custom. The feudal system had been so strongly intrenched in Japan, that, even after it was nominally abolished, it persisted in fact in many survivals which die hard. It is true that there is a strong popular demand for more representative institutions; it is also true that the mass of the people are somewhat contented with the *status quo* and are rather submissive in spirit. They still endure official surveillance and hold officialdom in awe; they take off their hats when speaking to a policeman. The survival of absolutism may be seen in the tendency to establish government monopolies and to nationalize industries. The survival of feudalism is evident in the political party system, where clannishness still prevails and loyalty to men is stronger than fidelity to principle.

Another conclusion one may reach is that nominality does not correspond with reality. The Japanese have a common expression, *yumei mujitsu*, which means literally "having name without reality." A certain thing may be so only in name, not in reality · nominally so, but not really so. This is a criticism which some have brought against Japan's present political system; that it is only nominally, not really, Constitutionalism. This may be true to a certain extent; the same political phrases do not connote exactly the same things in all countries. But there is another phase of this nominality. Theoretically and nominally, the central government, for instance, has control over each prefectural government; the Emperor appoints the governor of each prefecture, and the Minister of Home Affairs has the authority to dissolve a prefectural assembly, but he rarely exercises that authority. Both the Minister and the governor, though they are centralizing officials, prefer to respect local public opinion in local affairs.

The political campaign of the special election of March 25, 1915, calls for comment in this connection, because it illustrates some points in the evolution of popular institutions in Japan. The conduct of a political campaign had become too formal and had fallen into the hands of professional canvassing agents; so that, to some extent, the yen had become mightier than the pen. The cost of election had grown to be enormous, except in the very few cases in which a candidate was so fortunate as to meet with little or no opposition. It was, of course, a matter of discussion as to what constituted the legal expenses of a campaign; and it required no little care and ability to steer clear between the Scylla and the Charybdis of parsimony and bribery. It seemed to demand several thousand yen for an "average man" to carry on a campaign in a strictly legal manner. This sum would include such items as printing, postage, advertising, rent of offices, carriage hire and speech-making expenses.

House to house canvassing is one special feature of a campaign and is here dubbed "the submarine attack." It has been carried on by teachers, family doctors, female hair dressers, *et al;* and it has been especially utilized, in a few cases, by female members of the family of the candidate. This feature of women as campaigners has been strongly discussed, pro and con, by the press.

In the campaign of 1915, speech-making was a more prominent feature than ever. Ozaki, Minister of Justice, and the Premier himself actually "took the stump!" One unique feature of the campaign was the sight of Okuma, on a trip westward by rail, making short speeches from the car window at important stations! Another unique feature was the fact that, at many places where the presence of Ozaki or Okuma was impossible, their "tinned speeches" were heard from the phonograph! And an opposition candidate went one better by letting Ozaki speak through the machine but stopping it every few minutes to answer Ozaki's points! There certainly never has been such a "popular" campaign.

It may be added that the landslide to Okuma was the popular response to this campaign. It was a personal victory for the "grand old man," because he was not afraid to appeal to the people. The Army Increment Scheme, which had been the principal issue in bringing about the dissolution, was scarcely mentioned in the campaign. Even the important negotiations with China cut little figure; although they probably had more weight than the Two Division Increase. The result of the election was not so much pro Doshikai as anti Seiyukai. It was not that the electorate loved the Doshikai more but the Seiyukai less. It was a question chiefly of Okuma or Hara (present leader of the Seiyukai). It was because the people trusted Okuma. And, when Okuma's great victory was announced to him, he remarked;

"Now we can witness the dawn of real Constitutionalism in Japan."

Dr. Ukita, editor in chief of the great monthly magazine, Taiyo (Sun), has discussed in quite an interesting manner the change of methods in national elections. According to a summary of his article, he expressed the opinion that there have been three periods, those of robbery, jobbery and beggary. In the first period, violence was used to a large extent; in the second period, bribery rather took the place of violent method; and in this third period, the methods resemble those of begging an election.

If we turn to consider the work of the Diet, we find one phase quite in line with what is going on in the national assemblies of other countries. The real business of each House is being done in the committee rooms rather than on the floor of the House. Uyehara remarks on this point:

"The government has invented a doctrine called 'the principle of *fugen jikko*, or practice without discussion.' But the discussions in each House are not necessarily checked; the oratorical displays are not shut off; but the decision is often left to the calmer consideration of a committee instead of the excitement of a debate"

The House of Peers is a troublesome element in the political world of Japan. Uyehara claims that it is "a great obstacle to the proper development of constitutional government." But he rightly acknowledges that "the real usefulness of the House of Peers" will be more evident, if "Ministers become responsible to the House of Representatives."

In spite of the fact that mob violence is too frequent, there has been a great growth of the power of public opinion. There is even a trend toward democracy, not so much in form as in spirit. Some writers go so far as to assert that there is no public opinion, in the true sense of the word, that there is only mob opinion. But others believe that they see in mob violence only an unfortunate mode of expression of real public opinion; and they think that, with less official repression, there will be less public violent expression. They write about "the awakening of the people;" of the "tendency toward popular government" as "steadily growing strong;" and they claim that "on the whole, it must be admitted that Constitutionalism has made marked headway." They assert that the time has passed when the Japanese nation would follow the lead of one man "as sheep follow the shepherd." The development of such public spirit is no small result of the past 25 years.

In conclusion, it is interesting to notice how the Japanese seem to have united and harmonized various forms of government. They have not adopted but rather adapted what they found useful in other political systems and have harmonized all with Imperialism. The Emperor is still nominally and theoretically the head of the Empire, the sole sovereign; but he has voluntarily given away some of the administrative functions to an Imperial Diet, partly representative in its nature; and he has permitted a large measure of local self-government. In other words, the Japanese have evolved a form of constitutional government which theoretically recognizes the "divine right" of the Emperor to be absolute in his realm, but in practise gives to the people an increasing measure of administration with such representative institutions as an Imperial Diet and local assemblies. McLaren says:

"A Constitution which is obviously a compromise measure, or a system of government, which combines the three hostile elements of an absolute monarch, a bureaucratic oligarchy and a representative legislature, is not likely to be permanently satisfactory to a nation."

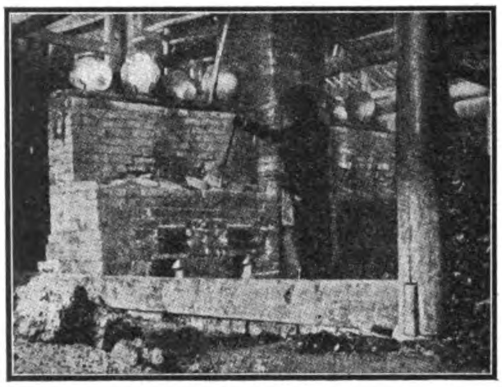
The Tokyo Nichi-Nichi Shimbun says:

"Our political system is neither monarchical nor democratic, neither bureaucratic nor parliamentary, neither militaristic nor antimilitaristic. These six elements are put together in an unharmonious conglomeration."

This is the record of twenty-five years of "Constitutional Imperialism in Japan." It is "imperialism" in origin, in essence, and in substance, in theory and in fact; but it has been, is being and will be, greatly modified by "constitutional" elements. It may never be reversed to "Imperial Constitutionalism;" but it is quite likely that the "imperial" features will grow smaller and weaker, while the "constitutional" elements will grow larger and stronger. This will come not by revolution but by evolution.

ANTIMONY PRODUCTION IN CHINA

[By F. L. Cole in Mining and Scientific Press]



Stirring Antimony in Furnace

The high prices for antimony have directed attention to China as a source of supply. Owing to the mining being entirely in Chinese hands, there has been little accurate information published regarding ore occurrence or smelting methods. The first record of antimony ore in the Chinese customs returns was in 1895 when a small quantity was exported from Shanghai. In 1904 the returns show that *regulus, crude, and ore were exported. These three, together with antimonial refuse, which is also called 'ash-and-slag,' being the residue from producing crude antimony, have since then become regular articles of export. Antimony oxide has recently appeared in the customs returns, but it is probably the natural oxide or oxidized ore. The first recorded exports were from Hunan province, which has continued to be the leading producer. No proof exists that the ancient Chinese mined antimony, but they produced iron, copper, lead, zinc, and other metals for many generations. Local tradition has it that two Swiss jewelers at Shanghai, on being shown samples of antimony ore, immediately traced the source, and started the trade in 1895.

Exports first were made from Shanghai by a few foreign merchants. The foreign merchant in China used to handle everything that gave a profit and in early days the profits were not small. The ore was brought from the interior to the merchant, who sampled it, paid as little as possible, and shipped the cargo to Europe or America. The business gradually grew and the headquarters of it moved up the Yangtze river to Hankow on the arrival of German metal-buyers, who brought out men familiar with the trade. Later, the centre moved to Changsha in Hunan, 250 miles farther inland. Now buyers go direct to the mines with hard money in hand and compete with each other for ores and products from the opulent mine-owners, who make their own prices.

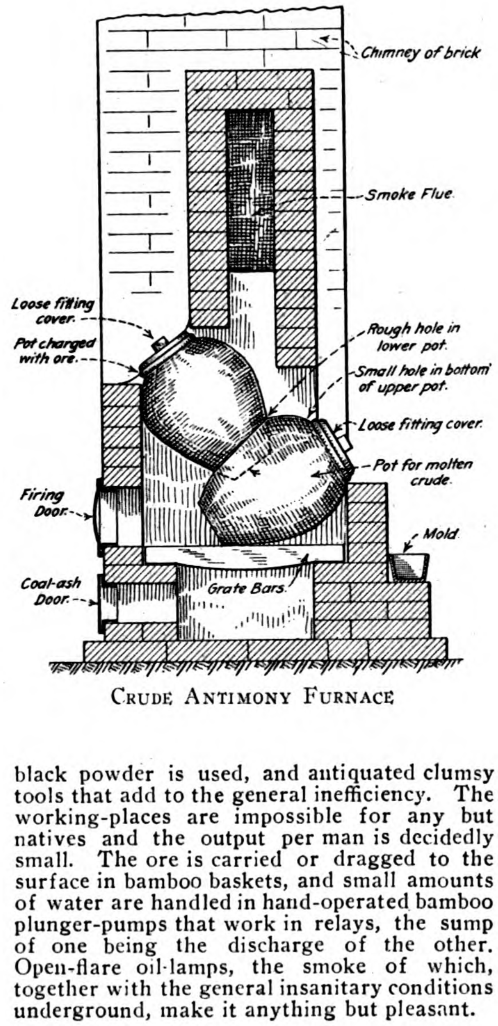
Antimony is known to occur in nine provinces: Chekiang, Kwantung, Kwangsi, Yunnan, Szechuen, Kweichow, Hunan, Hupeh, and Kiangsi. Of these Hunan is the principal producer, but the production in Kweichow, Yunnan, and Kwangsi is growing. It is reported by the native press that the duties in Kwantung on antimony have been remitted for three years from last October in order to stimulate exploitation.

C. Y. Wang, in the 'Mineral Industry' for 1913 mentions the localities of occurrence in Hunan, Kwangsi, Kwantung, and Kweichow. A. S. Wheler, mining engineer for the Board of Agriculture, Commerce, and Industry, Peking, in the September, 1915 issue of *The Far Eastern Review*, has given the best general description of the Hunan deposits. There is little reliable information regarding the other occurrences although the general geologic conditions are somewhat similar.

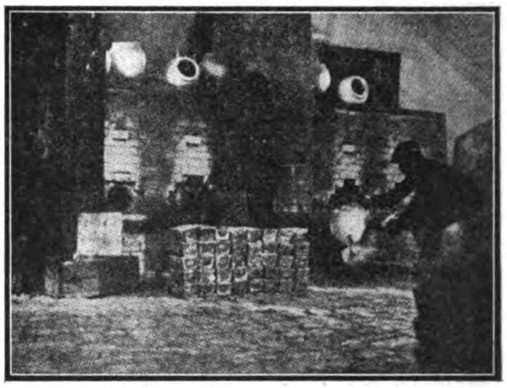
The Hunan deposits may be generalized as fissure-veins with quartz gangue cutting shale, quartzite, and schist: and scattered deposits in limestone. With the exception of the Pan Chi mines (described by Wheler, and also in the *Mining and Scientific Press* of July 10, 1915) none of these deposits has been exploited to any depth. The entire output of Hunan is 6,000 tons of ore per month.

W. R. Schoeller[1] described the Hunan ores and gives interesting information as to their purity. No careful study has been made as yet. The ore is principally stibnite, which in favorable places both at surface and underground is more or less oxidized.

The mines, like all Chinese underground workings, are mere gopherings, with no apparent system except to get out the visible ore above water-level as quickly as possible, in any manner, and with no thought of development. A pinch in a vein or a fault is enough to cause work to be abandoned. Native-made black powder is used, and antiquated clumsy tools that add to the general inefficiency. The working-places are impossible for any but natives and the output per man is decidedly small. The ore is carried or dragged to the surface in bamboo baskets, and small amounts of water are handled in hand-operated bamboo plunger-pumps that work in relays, the sump of one being the discharge of the other. Open-flare oil-lamps, the smoke of which, together with the general insanitary conditions underground, make it anything but pleasant.



Crude Antimony Furnace



Pouring Crude Antimony

The purpose seems to be to obtain the least possible results and provide the most work for the greatest possible number of people. But when the cost of the labor is considered, the results are not as bad as would be supposed. Until recent prices stimulated search, only high-grade ores were mined, but at present all possible grades are utilized and all old waste-dumps are being carefully sorted. Each outcrop has numerous companies working on various lengths, usually units of 10 Chinese feet (said feet varying with each locality) and the working of each company is called a 'mine.' So reports of a large number of mines in a district are apt to be misleading. Actual work is done on a kind of co-operative basis by contractors, wages seldom being paid for day's work. The Chinese insist on having a gamble with everything they undertake, so there are innumerable combinations of leases and sub-leases, which the foreign brain is incapable of comprehending. Theft is not unknown, but unless carried on in too open a manner, no attention is paid, as "everybody is doing it." Payment for labor is usually at a price or at so much per picul (133⅓ lb.) of clean ore, at the pit-mouth. The ore so received is sold to the nearest crude smelting-plant, which also absorbs the local high-grade output.

Hunan province, being rather independent, pays little attention to the various lengthy rules and regulations made by the Central government at Peking. The discoverer of an outcrop can apply for a prospecting-right over a given area through the local officials and the provincial guild to the provincial mining department. This permit entitles him to open the property; after a time, application is made for a working-permit accompanied by fixed payments. This permit necessitates a survey. Recent rules require any exploiter or company to show that there is actually a certain amount of capital available for the proper opening of the mine. This is obviated by forming a company and giving the shares a cash value equal to the requirements, with very little, if any, actual cash in the treasury. This rule is held over the heads of the small people but those in power can cheerfully dodge its ramifications. A tax of 5% on the value of the ore at the mine is collected, and a guild-tax and a 5% export-tax are collected by the customs on the market-value of the ore or products before they are exported. There are probably local taxes on smelting-plants, and various transport-dues along the roads and rivers.

As mining has been done profitably for some years in Hunan, the local rules are more helpful than otherwise to the industry. Transport of ore from the interior to steamer connections is done by coolies overland and by boats on the rivers.

*'Regulus' means antimony metal of 99% purity; 'crude' is the artificial antimony sulphide of much lower purity.—Editor.

[1] Journal of Society of Chemical Industry, London section. No. 6, Vol. XXVII, 1908; No. 10, Vol. XXXII, 1913; No. 4, Vol. XXXIII, 1914.

SMELTING METHODS. The furnaces for producing 'crude' metal are simple in construction and are made with no regard to economy either in fuel or the recovery of oxide from the escaping fume. They are built in units of four, occupying a floor-space of 12 by 2½ ft, and standing 5 ft. high. One furnace can be repaired while the other three-fourths of the unit is working. The bricks used are local and the cost of one unit varies from $20 to $40. The grate-bars and doors are also made locally, the grates consisting of 12 to 16 bars, a half-inch thick, 14 in. long, and spaced about a half-inch apart. The smoke and fume go to a common flue at the top of the furnace and are carried down in the centre to a common underground flue connecting with a chimney that serves all the furnaces.

The pots used are made locally; they average 12 in. inside diameter, 18 in. high, and the hole at the top is 7 in. They hold 50 lb. of ore. As shown in the sketch, the lower pot is cut on one side to receive the bottom of the upper pot. The upper pot has a small hole about a quarter-inch wide and an inch long cut in the bottom for the liquated sulphide to drop into the lower pot. These pots never join tightly and much fume escapes. The pots last up to two weeks, depending on the care of the operators, and become broken from the stirring of the ore in the upper pot.

When the furnace is hot, the upper pot is charged with lump and fine ore mixed, the greater pieces about the size of a dollar. Cheap local coal is used and the fire raised after charging. The tops of the pots are loosely covered, usually with a round cast-iron cover that collects oxide on its lower side. As soon as the temperature is high enough the ore begins to liquate, forming a pasty mass, and is frequently stirred with iron rods until it is considered to be finished, when it is in a more or less dry state. Meanwhile, when enough liquated sulphide has collected in the lower pot, it is dipped out with cast-iron spoons into molds which form brittle bricks of 10 lb. weight. The bricks are then weighed and boxed for shipment. The residue, left in the upper pot, is removed by spoons and thrown into a square iron box formed by two L-shaped castings; when cool the refuse is in a solidified lump. This refuse contains from 12 to 30% of antimony and silicious gangue, depending upon the grade of ore and the care used in smelting. The operation requires two to four hours during which time the furnace is surrounded by fumes that are unpleasant and injurious. Since the value of the tri-oxide has become known it is occasionally collected from the flues and chimneys and sold to plants producing regulus.

The smelting is done by contract, the contractor furnishing the labor, fuel, and pots, and keeping the furnaces in repair. There are at least twice as many men employed as necessary. Prices vary with local conditions but 'crude' is usually smelted for $15 per ton. It is packed for shipment in cases bound with strap-iron and holding 224 lb. net, and about 240 lb. gross and measuring 10 by 10 by 22 inches. The cases are poorly made, and as the metal is brittle there is often loss by breakage. Cargo is usually re-packed in Changsha or Hankow and the cases bound in sacking before ocean shipment.

The smelting of 'regulus' in Hunan is on an entirely different basis from that of 'crude' smelting, as it is practically controlled by a monopoly. In 1908, C. Y. Wang[2] obtained in France for the Wah Chang Mining & Smelting Co. the rights for China for the Herrenschmidt volatilization process; furnaces were installed in Changsha by French engineers and they have since been operated by Chinese. This process converts sulphide ores into tri-oxide, which is smelted for regulus in reverberatory furnaces. The best results are obtained on low-grade ores. The Wah Chang Co. also obtained from the Peking government the sole right to produce regulus in Hunan. This company owns some low-grade mines and also purchases ores. His Herrenschmidt furnaces have been erected in Yunnan near the treaty port of Mengtze by the Pao Hua Co., also connected with the Wah Chang Co. The latter produces regulus from crude, after converting it to tetra-oxide by a slow roast and also from oxide ores by direct smelting. There are at present several other plants in Hunan smelting oxide ores direct, but they all either sell their product direct or through the Wah Chang Co. This company's monopoly is contrary to the letter and spirit of various treaties with foreign powers, but so far they have succeeded in keeping their rights and have even had them extended.

The reverberatory furnaces used in smelting of oxide ores vary in size from a capacity of 300 to 1,000 lb., the size holding 500 lb. being most used. They usually have a low roof sloping downward toward the chimney and a deep bed with its lowest point opposite the one working-door. The hearth sometimes consists of a square cast-iron box lined with ground fire-brick and kaolin mixed, which is put in wet and well beaten; at other times the lining is used without the iron box.

The same lining is generally re-used and is unsatisfactory, lasting from one week to two months, and an extra number of furnaces must be kept in repair to assure a constant output. The furnaces are fired with soft coal and are connected to a common chimney through flues, generally underground, that are occasionally cleaned for the condensed oxide. The oxide is mixed with soda-ash and charcoal in varying proportions, usually about 10% each. When the charge is melted the furnace is cooled a little to thicken the slag, the slag is entirely removed and the molten metal skimmed clean. A 'starring' flux is then added composed of soda-ash, powdered crude, a little charcoal, tri-oxide, and sometimes small quantities of powdered oxysulphide ores. This starring flux is varied according to the kind of material being melted and is used over again until it will no longer produce the 'star.' As soon as the flux is melted, samples are taken of the metal; when it gives a good star the refining is judged to be complete and the charge is ladled out with cast-iron spoons into molds, producing a cake 8 by 8 by 4 inches and weighing 40 lb. A little slag is put in the mold before the metal is added, and the metal is kept covered with slag. The whole operation takes from four to six hours. Oxide ores are smelted in the same manner, being broken by hand to one-quarter inch size; the charge is more frequently rabbled and the operation requires 10 to 12 hours. Regulus is boxed for shipment in boxes similar to those for crude, except slightly smaller and weighing (net) ten cases to the long ton.

With careful manipulation the losses in smelting oxide are not over 6% and with oxide ores from 10 to 15%. Some of the loss is condensed as oxide in the flues and recovered. The star is no guarantee of purity and can be produced on 95% regulus as well as on 99%. With the naturally pure oxide ores and with the oxide from pure sulphide ores or the residue from 'crude,' the production of 99% (or better) regulus is only a matter of careful manipulation. As far as known, no one in China is producing regulus from crude or sulphide ores by the precipitation methods. The smelting of antimony refuse is being done at several plants, and with one exception the processes used are practically similar. The operation is to heat the refuse with charcoal or coke in small brick shaft-furnaces, lined with fire-brick, using a light blast and condensing the fume in chambers and scrubbing-towers. Numerous difficulties arise, the principal being the length of time required to oxidize the refuse and the difficulty in handling large charges, since the charge agglomerates, having to be constantly punched with bars. The condensers are various, but condensing seems to be the least difficulty; the best results are obtained in small furnaces with easily removable gratebars, completely closed, and with an air-blast sufficient to oxidize the antimony and not melt the gangue, which is principally silica. These furnaces are opened and the scoria removed several times a day through the grates. Charging is done in small quantities at frequent intervals. With a high scrubbing-tower no suction is needed for the condensers. Two furnaces 9 ft. high and 3 ft. interior diameter connected to brick condensing-chambers, in all 50 ft. long, thence to a 40-ft. wooden scrubbing-tower, will handle per day three tons of refuse containing 25% of antimony. Rufuse containing less than 15% antimony is hardly worth treatment. The oxide obtained is quite pure and contains from 65 to 80% antimony. Whenever the fume comes in contact with water, sulphuric acid is produced, causing trouble with pipes and tanks for the precipitating of oxide from the scrubbing-towers. One plant has a blast-furnace with a capacity of 20 tons of refuse per day; it is intended to condense the fume, charge limestone and iron for flux, and produce crude metal to be refined in reverberatory furnaces. A mechanical roaster for successfully handling the refuse in larger quantities would be satisfactory. Flotation would probably produce a high-grade concentrate. However, the supply of refuse being limited and coming from many sources and the amounts remaining in the old dumps having been well collected, there is not enough supply available to warrant any extensive installation for this particularly interesting branch of the industry, and it would hardly be profitable with low market-prices. From the average quality of refuse, a ton of regulus is produced from six tons of refuse. One plant is smelting under contract to produce regulus containing 65% of the antimony contents of the refuse.

Constant careful supervision, preferably foreign supervision, is necessary to prevent theft and to obtain good results in smelting. Skilled labor with competent supervision in China is more of a problem than is generally supposed. The actual cost in making one ton of regulus by the Herrenschmidt process, including power, labor, supervision, fuel, and fluxes is not over $25. One plant quotes $35 for custom smelting of oxide ores. The actual cost of smelting oxide ores of 50% antimony, including the above items, without power, is not over $15 per ton of regulus. Depreciation, repairs to plant, and other charges vary with the size of the plant. The price of ore varies with the market price of the metal. When the price is $125 per ton, regulus can be made and sold at a profit of at least 50% and at the present prices there is a profit of from 100% to 500%, depending on how fortunate the producer has been in securing his ore. There is much room for technical improvements in all the processes, and these may come with low prices and competition.

The present scale of wages and prices for materials, with normal freights and prices, render it difficult to see how any other country can compete with China in producing 'regulus' and 'crude.' The Wah Chang Co. has an output of 15 tons of regulus per day, and several other producers bring the total for Hunan to 20 tons per day. At or near Hankow there are five plants supplied with ores from Hunan. Three plants are working on refuse, and two on oxide ores, with a combined production of 10 tons per day. The plant near Mengtze, Yunnan, was producing two tons per day in September; there is some production from Wuchow near Canton, and ores are being shipped to Japan from Canton.

MARKETING. Up to the beginning of the War, the export of antimony was principally in the hands of the New Chinese Antimony Co., a branch of Cookson & Co. of England, together with French interests, and a few German firms who were interested in ores and metals besides antimony. The New Chinese company had an agreement with the Wah Chang Co. for all of their output and the latter could sell only to it. Differences arose in this agreement at the beginning of the War, resulting in cancellation of the agreement, but the Wah Chang pays the

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[2] 'Antimony' by C. Y. Wang; 'Metallurgy of Non-ferrous Metals,' William Gowland.

New Chinese a percentage on all sales for one year and can sell to anyone. Having experienced a boom at the time of the Russo-Japanese war, the Chinese dealers were confident that another boom was coming, and the Wah Chang Co. immediately absorbed several independent producers and strengthened their political fences so that in a few months they virtually controlled the Hunan market, not only for regulus, but for crude and ore as well. Huge profits have been made that will stimulate mining in Hunan. Buyers from all sources came into existence, as nearly every foreign firm in China wanted antimony and the local prices jumped daily. Few of the would-be buyers knew anything about antimony and consequently there were some sad mistakes. The home brokers and buyers wanted firm offers for a few days, but the Chinese wanted cash, as the time lost in telegraphing might result in the loss of a sale on a rising market, which was often the case. Formerly regulus, crude, and ore were purchased on contract for forward deliveries with part payment in advance or in some cases full payment in long-term native drafts that could be discounted locally, so the dealer often had the cargo and had turned it for a profit before the drafts came due. With the rising market, however, matters changed completely, so that producers and native brokers often sold to the nearest cash buyer regardless of the contracts hanging over them, with the result that the foreign merchant who had contracts and had sold forward on the strength of them was left holding the bag. The result has been that, with the exception of a few reliable producers, all business is cash and there are numerous cases for settlement involving large sums in which foreign consuls are writing demands and pounding tables in vain, as there seems to be no remedy for the recovery of money advanced or cargo that should be delivered. The Wah Chang Co. opened an office in New York, where it sells its own output, and the export business has resolved into the hands of a few foreign firms. Japanese have been the largest buyers of crude as they ship to Japan and convert it into regulus for the Russian and American markets, having the advantage of their own shipping companies and financial organizations. Some ore is being produced in Japan and a little from Korea; also there is some produced from Indo-China but the bulk of the Japanese regulus is made from Chinese crude.

Since the war very little ore has been exported from China except that which was bought previously; the high freight-rates and the difficulty of getting shipping space for bulk cargo preventing ore shipments abroad. Chinese regulus suffers in the market from either lack of advertising or astute competitors, as analyses show it to be as good or better than other brands.

The table below shows the export of antimony from Changsha for 1915 to November 1, the 1914 statistics for all of China being not yet available. The ore and refuse went principally to Hankow for refining.

Antimony regulus	5,255 long tons
Crude antimony	13,502 „ „
Antimony ore	743 „ „
Antimony refuse	3,839 „ „

N. Y. K. NEW VESSELS

The N. Y. K. has now 92 vessels with a total tonnage of 430,000, although the Yasaka Maru, 11,900 tons, and Takata Maru, 7,500 tons, have been lost. The fleet will be increased shortly by the addition of nine new vessels with a total tonnage of 54,800, which will be launched or placed in service this year. The company has now under construction three ships of 7,500 tons each, three of 7,300 tons each, two of 7,400 tons each and one of 30,000 tons. At the end of this year the company will have 101 vessels with a total tonnage of 484,800.

JAPANESE COTTON INDUSTRY

[By Mr. E. F. Crowe, British Commercial Attaché at Yokohama.]

Imports of raw cotton again increased in 1915. Detailed Customs returns are not yet available, but up to the end of November, 1915, imports amounted to 6,736,000 piculs valued at 200,657,000 yen as against 5,666,000 piculs valued at 199,737,000 yen for the same period in 1914. American cotton showed a proportionately larger increase from 1,043,000 to 1,439,000 piculs, while Indian cotton rose from 3,982,000 to 4,642,000 piculs. For this the increased demand for medium and finer counts referred to later is responsible.

The disturbed conditions in China which discouraged forward transactions in yarn prevented the mills from buying more than their immediate requirements during the first part of the year. But the Indian market not being influenced by the conditions which operated to send American prices up did not show the same power of recovery for some time and when trade prospects began to brighten in March and April Japanese spinners came forward and bought largely until prices went up and sales were checked. The mills adopted a similarly cautious attitude in their purchases of American cotton, but were able to take advantage of the slump in prices in the summer of 1915 to lay in stocks before the big rise in September. The prices of yarn moved in close sympathy with those of raw cotton, but the mills being well supplied with capital were little affected by its immediate fluctuations. Twenty counts which were quoted at yen 94 in January were at yen 122 by the end of the year.

The state of the Chinese trade in one sense determines the welfare of the Japanese spinning industry, as though the home demand is larger, it is steady enough to cause little anxiety, raised or depressed by temporary conditions but expanding constantly. The China market, on the contrary, is very sensitive and has shown itself liable to sudden fluctuations in recent years. Time and again when the Japanese export trade to China has apparently been on the eve of striking development, a change in the situation has upset calculations. In April, 1915, exports of yarn and piece-goods to China seemed to be booming. The steady rise in American cotton had been reflected in the recovery of the price of yarn and with a rising market, and China apparently ready to buy, the outlook was promising. All expectations, however, were falsified by the crisis which arose between the Governments of Japan and China and the boycott which followed its settlement. Not till August did trade recover from the blow which had been dealt it.

At the same time, conditions in China favoured the local spinner, first the abundant crop of Chinese cotton and secondly the fall in the price of silver. Chinese competition in the coarser counts was accordingly severe. In medium and finer counts and in piece-goods, however, Japanese merchants profited by the stoppage of German goods and possibly also by some slacking of imports of Manchester goods to advance their position. The net result was that while exports of counts up to 20 declined slightly for the first eleven months of 1915 and counts over 20 grew, the total was only slightly in excess of that for 1914. The exact figures were:—

	1914.	1915.
Up to 20 ...	129,825,000 kin.	126,337,000 kin.
Over 20 ...	18,056,000 „	23,901,000 „
	147,881,000 „	150,238,000 „

Over 86 per cent of these exports went to China and Kwantung and 12 per cent to Hongkong.

If, however, these figures are compared with the same period in 1913 then it will be seen that the growth has been striking, the export then amounting to 124,000,000 kin.

The home demand was good and would have been better but for the low prices of rice and raw silk in the first half of 1915. The high price of dyes which raised the cost of the finished goods also checked sales after a time. Raw silk, however, recovered and the price of rice also rose in sympathy with the general appreciation in prices. Furthermore, the burst of prosperity which has followed the sudden expansion of exports and the general tone of optimism are regarded as ensuring increased sales.

Conditions being as stated, while the spinning mills realised good profits in 1915, it could not be regarded as one of their best years, though spinners of fine counts were very successful, particularly as in addition to causes already stated the demand for fine counts for knitted goods was great. In August, 1914, the panic in the yarn market caused by the outbreak of war brought many dealers to the verge of bankruptcy. Meanwhile the output of yarn had increased considerably with the installation of new spindles and during the whole of 1915 it was necessary to curtail output, 20 per cent of the spindles being sealed during the first seven months and 10 per cent during the remainder. The mills have agreed to resume normal working from February 1st, 1916. The present output is about 160,000 bales per month and it is estimated that full work will bring this up to 165,000 bales. Now the home consumption has gone from 85,000 to 95,000 bales per month. Exports averaged 50,000 bales in 1915 in spite of adverse conditions making a total of 145,000 bales. The balance of 20,000 bales should, it is expected, be covered by increased sales at home and in China. With regard to the latter, the decreased crops and the rise in the price of silver if maintained will render the position of the Chinese spinner much less favourable than in 1915, or so it is supposed. Other factors are the rapidly increasing trade in piece-goods and in knitted goods. That the outlook is regarded as promising is shown by the fact that extensions at present planned amount to at least 300,000 spindles. There are now some 2,800,000 spindles in all.

In the export of cotton piece-goods, the effects of the war were favourable to Japan and the mills are reported to have made big profits in the sale of shirtings and drills. From May, 1915, the diminution in stocks in Shanghai created a demand for Japanese goods which increased steadily during the year. The mills, however, adopting the view that prices would go higher, showed no anxiety to push sales. This attitude appears to have been justified by results and prices of shirtings and jeans were maintained at a high level. In the case of the latter, Japanese goods had with difficulty succeeded in obtaining a footing prior to the war, but, as a result of the altered conditions, they assumed a position of some importance. Jeans were also sent, though in small quantities, to India with which a considerable trade in shirtings was done. Japanese mills, therefore, had every reason to be satisfied with their trade in piece-goods; ordinary sheetings and drills have been done in good quantities in the past but the export of shirtings and jeans constitutes an advance of some importance. Besides grey shirtings, bleached and dyed goods were the subject of enquiry. It is reported that at the beginning of 1916 the mills stand in the comfortable position of having sold their output for six months ahead and there is a general impression that the position that they have gained in the cotton piece-goods markets of China and India is one which they will keep.

Two other lines of export are imitation nankeens and cotton flannel. Both of these benefited by the war.

[*Note.*—1 Kin = about 1⅓ lbs.; 1 Yen = about 2*s.* 1*d.*]

THE FOREIGN TRADE OF JAPAN

The total volume of the import and export trade of Japan in 1914 was yen 1,186,837,186 (£-121,564,804), being a decrease of yen 175,054,-671 (£ 17,930,418), or 12.9 per cent. on the total trade of the preceding year. Of this volume the exports amounted to yen 591,101,461 (£ 60,545,064), showing a decrease of yen 41,358,752, (£ 4,236,275) or 6.5 per cent. on the figure for the preceding year, but an increase of yen 64,119,619 (£ 6,567,624), or 12.2 per cent, on that for 1912, while the imports amounted to yen 595,735,725 (£ 61,019,740), showing a decrease of yen 133,695,919 ($ 13,694,143), or 18.3 per cent. to the figure for the preceding year and of yen 23,256,452 (£ 2,382,105), or 3 8 per cent. on that for 1912. If we take the year 1914 as being divided into two periods by the outbreak of the European war, we find that the exportation of raw silk, *habutaye*, cotton yarn and thread, cotton fabrics, copper, coal, and timber was very prosperous during the first seven months, that is, the period prior to the outbreak of war, and showed an increase of yen 31,005,430 (£ 3,175,810), or 9.2 per cent. on the corresponding period of the preceding year; but during the last five months the effects of the war were felt,and the exportation of the principal articles of export of this country, with the exception of tea, fell off and showed a decrease of yen 72,364,182 (£ 7,412,-085), or 29.5 per cent. on the corresponding period of the preceding year. On account of a falling off in the importation of rice, sugar, worsted, cotton tissues, iron, machinery, and petroleum, there was a decrease of yen 32,946,-386 (£ 3,374,617), or 7.1 per cent. in the first seven months of 1914 compared with the same period of the preceding year; while in the last five months not only was the importation of German and Austrian products suddenly stopped, but the import trade generally was restricted by inconveniences in exchange and communication, and business-men, fearing a financial crisis which is often unavoidable in time of war, refrained from engaging in new enterprises, with the result that there was a falling off in the importation of building materials, raw materials for manufacture, and machinery, thereby causing a further depression in import trade, which was less in those five months than in the corresponding months of the preceding year by yen 100,749,533 (£ 10,319,526), or 37.6 per cent.

Trade with the Various Countries

The volume of exports to the United States was the largest, the amount exported being yen 196,530,008 (£ 20,130,008), an increase of yen 12,056,626 (£ 1,234,930), or 7 per cent. on the preceding year. China came next with direct exports valued at yen 162,370,924 (£ 16,631,253); but as the amount exported to that country by way of Kwantung Province and Hongkong was by no means inconsiderable, the total volume exported to the republic directly and indirectly did not probably fall short of yen 189,000,000 (£ 19,358,804), an increase of yen 3,000,000 (£ 307,283) on the preceding year. Next in point of prosperity came the export trade with Great Britain, France, British India, Italy, and Australia. The export trade with Germany fell off on account of the war by yen 3,169,616 (£ 324,656), or 24 per cent. when compared with the volume in 1913; but exports to Russia in Asia, on the other hand, rose to yen 10,413,147 (£ 1,066,593), an increase of yen 6,141,734 (£ 629,083), or over 140 per cent. on the preceding year.

In import trade the imports from British India take the first place on account of the large importation of raw cotton and rice, the amount being yen 160,324,460 (£ 16,421,639), which, owing to a falling off last year in the importation of rice, shows a decrease, compared with the preceding year, of yen 12,849,401 (£ 1,316,132), or 7 per cent. Next in order come the imports amounting to yen 96,771,077 (£ 9,912,023) from the United States, those from Great Britain amounting to yen 92,302,307 (£ 9,454,298), and those from China which came up to yen 58,305,783 (£ 5,972,118). All these show a decrease on the preceding year; but most marked is the decrease in the imports from Germany and Austria-Hungary, the rate being 34 per cent. in the former and 51 per cent. in the latter; from August direct trade with these two countries was entirely cut off with the exception of importation of goods which had been shipped prior to the outbreak of war and those stored in bonded warehouses.

If we add to the volume of Japan's trade with the various countries the volume of the trade with their colonies and dependencies, we find that imports from Great Britain and its colonies and dependencies amounted to yen 273,247,066 (£ 27,988,023) and exports thereto to yen 117,896,767 (£ 12,075,875), making a total of yen 391,143,833 (£ 40,063,898), or nearly one third of the total foreign trade of Japan. The import and export trade with the United States, Hawaii, and the Philippine Islands amounted to yen 312,394,814 (£ 31,997,-830), and that with China to yen 220,676,707 (£ 22,603,371), the trade with these three countries and their dependencies coming up altogether to yen 924,215,354 (£ 94,665,098), or 78 per cent. of Japan's entire foreign trade, so that they hold important positions in her foreign commerce.

Trade at the Commercial Ports

Of the thirty-seven open ports of the country, Yokohama exported yen 269,452,464 (£ 27,599,-351), or 45 per cent. of the total export trade; the raw silk and *habutaye* exported from the country passed almost entirely through this port, and a large quantity of other silk fabrics and silk goods was shipped from it, for which reasons its exports exceeded those of other ports. Next to it in volume of exports came Kobe with yen 167,522,636 (£ 17,158,930), Osaka with yen 19,965,938 (£ 2,045,062), Shimidzu with yen 7,963,143 (£ 815,645), Miike with yen 6,290,997 (£ 644,371), and Wakamatsu with yen 6,169,469 (£ 631,923). The principal exports of Kobe were cotton yarn and thread and other cotton goods, matches, copper, and straw plaits; Osaka exported various goods for Chinese consumption; Shimidzu having behind it the chief tea district of the country, its principal export was manufactured tea; and Miike and Wakamatsu exported little else than coal.

In the volume of imports, Kobe held as usual the first place, the amount for 1914 being yen 281,959,911 (£ 28,880,458), or over 47 per cent. of the total import trade; Yokohama came next with yen 178,781,276 (£ 18,312,125), the total imports and exports of the two ports being yen 897,716,287 (£ 91,950,-864), or more than 75 per cent. of the total trade of the country. After Yokohama in volume of imports came Osaka with yen 41,406,054 (£ 4,241,120), Moji with yen 32,274,349 (£ 3,305,782), Yokkaichi with yen 21,934,996 (£ 2,246,748), and Nagasaki with yen 13,001,368 (£ 1,331,698). On account of the general depression of trade, the imports and exports of the various ports in 1914 showed on the whole a falling off when compared with the figures for the preceding year, with the exception of Tsuruga, Shimidzu, and Nagoya, which showed an increase on the preceding year, the first on account of a great increase in its export trade with Russia, the second on account of a brisk export of tea to the United States, and the third on account of a flourishing trade in cotton yarn and fabrics.

Entry and Clearance of Vessels

The number of vessels engaged in foreign trade which entered or cleared from the open ports of the country in 1914 was 19,565, with an aggregate tonnage of 47,192,489 tons, of which steamers numbered 18,973 with an aggregate tonnage of 47,098,639 tons, being a decrease, compared with the preceding year, of 841 vessels, or 4.2 per cent. and 2,392,578 tons, or 4.8 per cent. Of these vessels, Japanese steamers numbered 12,713, with an aggregate tonnage of 23,566,448 tons, being an increase on the preceding year of 188 vessels and 426.544 tons; the tonnage of Japanese steamers amounted to 54 per cent. of the total steam tonnage being an increase on the preceding year of 3 per cent. Foreign steamers, on the other hand, fell from 7,289 vessels and 24,351,303 tons in 1913 to 6,260 vessels and 21,532,181 tons in 1914, their tonnage declining in these two years from 49 to 46 per cent. of the total steam tonnage. This falling off in foreign shipping was, it need hardly be said, due to the European war. The German and Austrian vessels having shortly after the outbreak of hostilities been swept out of the Eastern seas, there was a marked decrease in their number in 1914 as compared with the preceding year, the decline in German steamers being 225 vessels and 795,671 tons, a decrease of 24 per cent. in tonnage and that in Austrian steamers 30 vessels and 114,964 tons, a decrease of 39 per cent. in tonnage. British steamers also showed a decrease of 583 vessels and 1,379,259 tons, a falling off of 9.4 per cent. in tonnage and French steamers similarly fell off by 41 vessels and 158,105 tons, a decrease of 19 per cent. in tonnage, while American steamers increased by two vessels and decreased by 83,502 tons or 3.2 per cent. The Netherlands and Swedish shipping also showed a decrease.

THE KOREAN TARIFF

The Yokohama Chamber of Commerce in an extraordinary general meeting passed two memorials to be presented to the Premier and the Minister of Agriculture and Commerce. One of these proposes the abolition of the existing customs tariff of Korea, and the other the establishment of a trade information bureau in the Department of Commerce.

The tariff regulations in Korea are those which were in force in pre-annexation days. This tariff the Japanese government declared at the time of annexation would be in force for ten years. According to the resolution, the members of the Yokohama Chamber of Commerce understand that the Japanese government made the promise for fear that the abolition of the Korean tariff might cause anxiety in countries which had trade relations with Korea.

Six years have now passed since the annexation, and the economic relations between Japan and Korea have undergone a considerable change. The war has also worked a remarkable change in the economic condition of Japan. It is argued, therefore, that it is essentially necessary to place the economic markets of Japan and Korea under one and the same law, and to remove all barriers from the economic and trade relations between the two countries. The Yokohama Chamber of Commerce wishes that the government would abolish the existing tariff system in Korea, and adopt there the same tariff system as is in force in Japan.

In the other memorial the Yokohama organization proposes to establish a bureau or section in the Department of Agriculture and Commerce, such as the one the British Board of Trade has at present; this bureau or section to collect all necessary information from all parts of the world and help Japanese traders in their work of extending trade with foreign countries both during and after the war.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Manila Railroad Purchase.—Commissioner Clyde A. DeWitt of the Board of Public Utilities is in the United States, with authority from the governor general to carry on negotiations for completing the purchase of the Manila Railroad Company's lines on Luzon. It will be remembered that the memorandum agreement between the chief executive and the president of the local company, which outlined the terms governing the transaction, summarised in *The Far Eastern Review* for February, was signed late last fall and formally ratified by the legislature in February, the latter body conferring upon the governor general the right to negotiate the purchase for the government of the Philippine Islands. The deal is now practically closed, and while the final papers will probably be signed in Manila, it is understood that there are certain formalities remaining which require the presence of representatives of both contracting parties. Mr. DeWitt, under the authorization just granted him, will be empowered to act for Governor General Harrison in conference with the railroad company's directors in the United States.

S. M. R. Traffic Returns.—The South Manchuria Railway traffic returns for March totalled Y2,405,397.35, a daily average of Y77,593.46, and a decrease of Y16,025.48 per day from the corresponding month last year. The total traffic receipts for the fiscal year, ending in March, amounted to Y24,653,742.62, and the net increase on the preceding fiscal year decreased to the nominal sum of Y35,619.28.

The Railway's calculation of the increase for the last fiscal year is at a wide variance from the above. According to their calculation, the total traffic receipts for the fiscal year amounted to Y23,737,817.41 as against Y23,216,721.52 for the preceding fiscal year, yielding an increase for the last fiscal year to the amount of Y521,095.89. The comparison of the detailed figures is as follows:—

	Fiscal year 1915	Increase over 1914
No. of passengers ...	3,661,824	44,277
Passenger receipts ...	Y 4,761,902	594,734
Goods tonnage	5,843,139	157,191
Goods receipts	17,574,906	24,756
Warehouse receipts ...	244,580	67,441
Sundry receipts	1,156,428	34,162
	Y23,737,817	521,095

The S. M. R. Co. estimates for the current fiscal year as approved by the Government under date of April 20, are as under:—

	Receipts Yen	Expenditures Yen
Railway: Main & Branch Lines	22,180,254	7,385,285
Railway: Mukden-Antung Line	2,103,008	1,388,520
Shipping	1,466,937	1,447,226
Electricity	1,192,425	768,732
Gas	267,867	152,833
Harbour	2,376,048	2,141,942
Mining	14,849,049	13,135,674
Hotels	138,237	309,886
Railway Area	1,307,742	2,716,121
Sundry profit & loss ...	50,000	200,000
Interest	335,000	5,808,510
General expenses	—	340,047
Emergency fund	—	501,000
Total	46,367,567	39,469,582
Net profit		6,897,985
	Y46,367,567	Y46,367,567

Shantung Railway Returns.—The monthly traffic receipts of the Shantung Railway for February amounted to S. Y310,000, giving a daily average of about S. Y10,700. Compared with February, 1913, under the German regime, the daily average was about Y9,000 and that for the same month in the succeeding year amounted to about Y12,000. The aggregate returns since the Line passed under Japanese management reached about S. Y3,500,000, promising to attain S. Y4,000,000 by the end of the present fiscal year.

The estimates of expenditures for the Railway during the current fiscal year amount to Y3,300,000. Among the new undertakings may be counted the construction of a medical station at Tsinan, a Primary School at Tzuchuan (at which place a warehouse belonging to the Tzuchuan Colliery is now doing duty as the school-house), and housing accommodation for the Railway people along the line.

Siam Railway Receipts.—Approximate receipts in Ticals for February from the Broad gauge (872 klm.) lines compared with actual receipts of February, 1915 (Siam Calendar 2457) is as follows:

	Year 2458	Year 2457
Passengers	Tc. 358000.	Tc. 250849.
Goods	188000.	224251.
Others	4100.	3699.
Total	Tc. 550400.	Tc. 478799.
April to Feb.	Tc. 4,252,744.	Tc. 3,887,914.

The considerable fluctuation in Traffic Receipts is due to the Phrabad and Phrathen festivities falling in the month of January last year and Feb. this year.

Novel Railroad Bridge for Java.—A bridge built for the Holland government railroad over the Serajoe River in Java has been made complete in the shops in Holland, and so carefully has this been done that no field work will be required in erecting the steel structure other than that of connecting the members. The bridge site is far from any kind of shop facilities, and to make sure that the structure would go together properly it was first erected as carefully as if on its permanent location, in the yards of the manufacturing company in Holland. Following this it was taken down and shipped by steamer to Java. The bridge is of unusual design, consisting of three arched spans of steel connecting with short, straight trusses over the piers. It has a total length of 698 ft. 10 in., and weighs 580 tons. It is designed to carry a single-track railroad having a gauge of 3½ feet.

Japanese Railway Estimates.—According to the practical estimates of the Imperial Japanese Government Railways for the next fiscal year, as adopted at the recent conference of the Directors of the District Departments, the aggregate receipts were put at Y122,020,702 and the aggregate expenditures at Y100,874,818, the net profit amounting to Y21,145,884.

Double Track Open Soon.—The double track line, which is being built between Ofuna junction, on the Tokaido main line, and Taura, near Yokosuka, is nearly completed and will be open for traffic by the end of May. The work of improvement between Yokosuka and Taura, which was planned to be made this time, was postponed owing to the increasing cost of materials.

Canton-Wuchang Line.—On the Canton-Wuchang Railway work is proceeding apace. The workmen's train runs daily now to within a few li of Sienlin. A new extra-mural Wuchang will be built within a few years as it is now seen that the full running of the railway will necessitate wide expansion of the existing city.

Tasmania Railway Project.—Recently an offer was made by two of the leading business men of Hobart to construct a railway from Hobart to the west coast of Tasmania. There has been a demand for this railway for a number of years, but as the State of Tasmania had not been in a financial position to construct it, some years ago it offered certain grants to a syndicate as a bonus for the work. The syndicate did not take advantage of this offer, and now the business men mentioned have offered to construct the road if the Government will give them the same terms that were offered to the syndicate. The railway would develop a large and rich section of Tasmania. It would be about 140 miles long, and would cost between Gold $4,000,000 and $5,000,000. An Australian firm had offered to build the road for Gold $30,000 per mile for the old syndicate, if the latter would furnish the rails.

Canton-Hankow Railway Bridges.—The contract for the supply of bridge girders for the Canton-Hankow Railway (Hupeh-Hunan section), a part of the Hukuang Loan Railways, has been awarded to Messrs. Jardine, Matheson and Co. (Ltd.), and the Yangtze Engineering Works (Ltd.). The Yangtze Engineering Works (Ltd.), a Chinese concern, has been awarded the contract for the supply of 209.7 tons of the girders, short spans, at a total bid of Gold $23,890, delivery to be completed in 5 months. Messrs. Jardine, Matheson and Co. (Ltd.), tendering on behalf of the United States Steel Products Co., were awarded a contract for the supply of 18 spans of 150 feet and 6 spans of 200 feet at an aggregate tender of Gold $475,304, delivery to be made not later than September 30, 1916.

The time of delivery was a factor in awarding the contract, as it was the desire of the railway to complete the line from Hankow to Changsha during the current year. It was specified that the bridges should be shop erected, which is contrary to the best practice prevailing in the United States. Under the resolutions of the May conference of 1915, American manufacturers are entitled to tender for all bridges provided for by the Hukuang Loan, under the recognized standard practice prevailing in the United States. Therefore a protest was filed against the specifications, and in the award of the contract, the American manufacturers agreed to shop erect one span of each class.

New Road to Open Mongolia.—There are three inlets into Mongolia: one from Changchun going up the Sungari to Taonanfu; the second from Ssupingkai on the South Manchuria Railway to Kailu via Chengchiatun; the

third from Jehol to Chihfeng. The proposed construction of the Ssupingkai-Chengchiatun Railway, although only 53 miles long, is an initial step of great commercial importance taken for the opening-up of the neglected Mongolian resources. Seen from an agricultural point of view, the arable land in Eastern Mongolia includes a fertile country in the Taoerh Valley, the region in the Upper Liao Valley, and the zone about Chihfeng and Wutancheng, the total area amounting roughly to 9,861,000,000 *tsubo* (about 8,200,000 acres). All this vast area is already under cultivation. Land available for cultivation or for stock-raising is estimated at 21,000,000,000 *tsubo* (about 17,500,000 acres).

These lands produce an immense quantity of produce like beans, kaoliang, and millet for principal products. One-third of the produce may be put down as for exportation, and the new Ssupingkai-Chengchiatun Line will play an active part in carrying the export produce. Then there are live stock and accessories, including cattle, horses and sheep, their hides and skins, hair and wool, etc. In addition, the fish to be caught in the Liao, the Taoerh, etc., together with soda and other minerals may be taken into reckoning.

Although the Y5,000,000 Ssupingkai-Chengchiatun Railway Loan has already been issued in Japan, (see page 439 this issue), the actual construction work is likely to be deferred to next year owing to insufficient supply of materials.

From a reliable source, it is learned that the survey work will be started shortly and will be completed by the end of June. Construction work may begin immediately afterwards.

Extension of Area at Fushun.—The Railway Area included in the Fushun Collieries comprises about 2,500,000 *tsubo* (about 2,100 acres) at present. An extension of the same Area has become necessary to the amount of about 1,100,000 *tsubo* for use as the ground for gathering sand for a sand-flushing enterprise, etc. Negotiations with the Prefect of Fushun in the matter have been taken up.

SHIPPING

New Pacific Mail Liners.—The Pacific Mail Steamship company has bought the Dutch liners Venezuela, Ecuador, and Colombia for use in the Pacific trade. The purchase price is not known. The Venezuela, Ecuador and Colombia are new vessels, completed in the latter part of 1915 for the Royal West Indian Mail line of Holland. They each have a registered tonnage of about 5,500 gross and 3,500 net. The Venezuela and Columbia were built at Amsterdam and the Ecuador at Flushing The Venezuela is slightly larger than the other two.

Hongkong Shipyards Busy.—The large shipyards of Hongkong, under certain conditions, can build ships as cheaply as any yards in the world according to a report by U. S. Consul General Anderson. Usually the necessity of obtaining much of the steel plate work from abroad serves to counteract many advantages the industry has in Hongkong, but despite the high freight rates on steel the Hongkong yards are now building ships in competition with the shipyards of Europe. All the shipyards in Hongkong capable of building ocean vessels have work to their full capacity. In the two larger yards fourteen new vessels are now under construction including three new ships for the Blue Funnel Line and three new ships for the China Navigation Company which are on the ways at the yard of the Kaikoo Dockyard and Engineering Company, while the yard of the Hongkong and Whampoa Dock Company (Ltd.), is busy with six new ships for Messrs. Brunsgaard Kiosterud & Co. and two for Messrs. Hans Kiaer & Co., of Drammen, Norway. Two other vessels of the same class will be started as soon as room can be made for them and three others are contracted for. There are also under construction two vessels for the Siam Steamship Company.

According to reports from Siam, the last named vessels will be built to British Lloyd's highest class, carry a deadweight of 1,000 tons and run 10½ knots, having accommodations for 20 first-class and 8 second-class passengers. The boats are expected to be ready in 12 months. The company now has a fleet of 5 steamers for the trade on the west coast of the Gulf of Siam.

New Spanish Mail Liner.—Plans and specifications have been approved for the construction of a new 11,000-ton passenger and freight steamer for the Compania Trans-atlantica for use on the Liverpool, Barcelona and Manila run. The construction of the new steamer will begin in April at the company's shipyards at Cadiz and under favourable conditions the new liner should be ready for her maiden voyage the latter part of this year.

Panama Canal Open Again.—The American Ambassador officially notified the Japanese government on April 4 vessels below 30 feet draught would be able to pass through the Panama Canal after April 15, but that the passage of ships might be delayed somewhat owing to the dredging work which may be done later to widen or deepen the canal.

Merchant Marine.—According to reports made the Japanese Department of Commerce by 39 shipyards, 300 vessels (with a gross tonnage exceeding 1,000,000 tons) are under construction. Of these vessels 58 are government ships, 56 are oil tank steamers, and 31 are ocean going vessels.

Furukawa to Ship Own Coal.—The Furukawa Mining Company has opened a shipping department. The ships to be used in the new department will be the Tenno Maru, 3,300 tons, recently launched, the Kalo Maru, 3,000 tons, to be finished in August, and six other chartered vessels, including the Osaka Maru, Yodo Maru, Prometheus, Simon and one other foreign steamer. The Company will run these steamers between Kobe and Shanghai and Hongkong mostly for the transportation of coal.

New Nagasaki Wharf.—The Nagasaki Customs authorities have planned the construction of a wharf at Deshima, capable of accommodating a 5,000-ton steamer, or if used for smaller vessels two of 3,000 tons or three of 1,000 tons. The cost is estimated at Yen 1,101,388, including the dredging operations and other necessary work. The construction will take two years. It is stated that the Government will be approached by the Customs authorities and also by the Municipality for an appropriation.

Japan's Coastwise Subsidies.—The renewal of the Government's subsidies to the different coasting services for the two years ending on March 31st, 1918, has been announced as follows:—

To the Nanyo Yusen Kaisha (South Seas Mail Steamship Co.):—Y220,000 for the South Seas Line and the Javanese Line.

To the Nisshin Kisen Kaisha:—Y538,000 for the China Line.

To the Osaka Shosen Kaisha:—Y100,000 for the Dairen Line, Y157,000 for the Direct Vladivostok Line, Y47,000 for the Circuitous Vladivostok Line.

To the Nippon Kisen Kaisha:—Y47,500 for the Kabafuto Line.

An annual subsidy of Y40,000 has been granted to the O. S. K. steamer *Taigi Maru* which is to ply between Kagoshima and Nawa (the capital of the Loochoos) on condition that not fewer than six trips per month be undertaken.

Japan Traders Suggestions:—The Japan Foreign Trade Association, has petitioned the government authorities to increase the number of vessels, especially on the American and Indian lines. The association presented four suggestions to the government: The government should allow the shipping companies to increase their rates in a degree that would not disturb foreign trade and let them increase the number of boats.

The duty of the Japanese navy is not confined to the defence of the country, but it is its duty to protect and improve our trade. Let old warships be sold and used for the transportation of merchandise. Naval shipbuilding yards should be utilized as much as possible for the building of merchant boats.

Japan's Shipyards Hampered.—The British Government's prohibition of exports of pig-iron and steel railway materials and shipbuilding materials, has caused a panic among Japanese merchants and shipbuilding firms. Orders issued by various shipbuilding yards in Japan for material for constructing vessels amounted at the end of 1915 to 107,000 tons. Of this quantity 46,000 tons were ordered from the United States, 30,000 tons from England, and 25,000 tons from the various steel and iron foundries in Japan. Because the shipment of steel from England is gradually becoming difficult, it is feared that the building yards will be obliged to suspend work partially. As a result of recent negotiations between the Government and the representatives of the shipbuilding yards, it has been arranged that the authorities, as far as possible, shall encourage the manufacture of steel of various kinds in Japan.

Investigations made by the Department of Communications show that 50 steamers, representing 188,000 tons, are due to be completed in various yards in Japan during the course of this year. Owing, however, to the scarcity of steel in the Japanese market, and the difficulty of importing the material, shipbuilders are now seriously handicapped, and are reported to be declining orders. Mr. Kojiro Matsukata, president of the Kawasaki Dockyard, has sailed for Europe via America to buy materials for shipbuilding in New York and to consult with the different iron factories as to the manner of shipping the goods already ordered. Despite the freight congestion, he says these goods must be sent to the eastern coast of America and shipped from there owing to the shortage of steamers on the Pacific.

Mr. Matsukata also will go to England to negotiate with iron manufacturers there as well as the British government as to supplying Japan with iron materials. In England he will represent other Japanese business men in negotiating for a supply of iron materials which are now absolutely necessary if Japan's ambitious program of shipbuilding is to go on.

Japan to build Warships.—With the appropriation passed by the Imperial Diet at the last session, the Imperial Navy will soon begin the construction of one battleship, two cruisers, one destroyer, and three submarines. The battleship is to be of 32,000 tons; the two cruisers of 3,500 tons each; the destroyer of 1,200 tons, and the three submarines of 800 tons each. The battleship and three submarines are all to be built at the Naval Dockyard at Kure, one cruiser at the Naval Dockyard at

Yokosuka, another cruiser at the Naval Dockyard at Saseho, and the destroyer at the Naval Dockyard at Maezuru.

Japan's Merchant Marine.—The Department of Communications announced on April 5 the result of an investigation of Japanese steamships and sailing vessels. The figures given are the number of vessels on February 29, 1916.

Tonnage	Number	Total Tonnage
20 to 100	1,035	47,142
100 to 300	436	69,500
300 to 500	90	36,485
500 to 1,000	149	109,272
1,000 to 2,000	127	192,308
2,000 to 3,000	122	300,425
3,000 to 4,000	80	267,108
4,000 to 5,000	27	119,052
5,000 to 6,000	31	175,391
6,000 to 7,000	13	82,078
7,000 to 8,000	10	75,811
8,000 to 10,000	6	57,052
Over 10,000	5	61,672
Total	2,131	1,602,286

The number and tonnage of the sailing ships are as follows:—

Tonnage	Number	Total Tonnage
20 to 100	7,240	343,955
100 to 300	1,491	197,687
300 to 500	5	1,913
Over 2,000	1	2,439
Total	8,737	545,994

New Japanese Steamers.—According to the Department of Communications, the steamers that are to be launched during April and May are the Uraga Maru No. 3, of 2,150 tons, at the Uraga Dock, a steamer of 2,800 tons, a sister ship of the Akita Maru, at the Nagasaki Dock. Besides, two more steamers of 3,200 tons each are under construction at the Osaka Iron Foundry Dockyard, and one steamer of 4,600 tons at the Kawasaki Dockyard.

Formosa-Manila-Java Line.—The Osaka Shosen Kaisha has received a charter from the Formosan government to open a new line beginning April 25. The vessels will call at Manila, Java, Sumatra, Borneo, Singapore and other ports. Tea and rice are the principal articles to be exported from Formosa.

T. K. K's. Pretentious Program.—The Toyo Kisen Kaisha is planning very extensive additions to its fleet. Specifications are ready for eight large cargo steamers which will be launched next year and which will resemble somewhat the "T" class of N.Y.K. freight vessels. In addition to this, the plans are now being drawn for two large passenger vessels slightly larger than the Empress of Russia and the Empress of Asia. All of these vessels will be built in Japan. Two of the freight vessels will be built at the Uraga Dockyards. Some of the other vessels will be built by the new dockyard to be started by Mr. Asano and his associates at Yokohama. The plan of the T. K. K. is to have five first class passenger ships on the trans-Pacific service. The fleet would be composed of the Shinyo Maru, the Tenyo Maru, the two new ships which are about to be built, and the Anyo Maru which is on the South American run. In addition to this, they would have the Persia and the Nippon Maru as intermediates. Two engineers left five months ago for England with plans of the new freight boats for approval by Lloyds.

T. K. K. Yokohama Dockyard.—Negotiations between Mr. Asano, president of the T. K. K., and the directors of the Yokohama Dock have gone ahead monthly and a formal contract will be made in a few days. Mr. S. Asano has already selected experts for building the new shipbuilding yard and the construction of slips and other necessary preparations will be started immediately after the contract is signed. The new company which is called the Yokohama Shipbuilding and Dock Company was fully registered on April 18 at the Yokohama District Court, with a capital of 3,750,000 yen. Mr. Asano Soichiro is president and Messrs. K. Sudzuki, S. Hara, R. Kato and M. Maeda, directors. The payment of 12.50 yen a share was made last Thursday and the company has 937,500 Yen as working Capital. As soon as sanction is given by the Yokohama city assembly, which was to be held on 20th inst. the new company will start the work of reclamation. Shipbuilding work will be commenced within this year.

All the machinery and material for the new dockyard were ordered four months ago and the newly formed company is awaiting only a suitable site. The plan is to construct five or six slips at once but the directors of the company wish a site that will permit of extensions and want space for a dozen slips. The new dockyard will employ 5,000 men and in time probably double this number. An official of the company said that it would require only about two months to build the slips after the site had been decided upon and the preparatory work on the site had been finished. This preliminary work, it is estimated, would take only two or three months. They believe that they could be ready for building operations in five or six months time, and that they would be launching the new boats ordered by the T. K. K. during the coming year.

P. I. Officials Grant-New Rates.—Despite a recent decision by the Philippine supreme Court which declared that the Public Utilities Board has not the right to require shipowners to present to it their operating statements, the board has ordered other members of the Philippine Shipowners Association who had not yet been granted the authority to carry into effect the rate increase of 25 per cent, to submit their statements of operations so as to enable the board to decide intelligently the justice and reasonability of the increase in rates they were seeking. Many protests have been filed against the proposed increase.

P. I. Shipping Bill.—Following the example of the U.S.Congress, the Philippine Legislature has passed an act providing for a Board of Marine Examiners, for the examining and licensing of watch officers and engineers on Philippine vessels in the coastwise trade and for the high seas, license fees, compensation, and penalties in certain cases. In the passing of this act the legislature has interfered with previous legislation which had worked admirably; which had proved efficient; and had also given satisfactory results. Under the present amended act all vessels under Philippine registry engaged in the major coastwise trade, will be compelled to carry extra officers. It does not affect steamers of 1,500 tons and over but steam vessels under 250 tons, which, owing to their limited capacity for freight carrying and passengers will naturally feel the extra expense entailed to a considerable extent. It is the opinion of the shipping fraternity here that the amended act puts an extra 25 per cent on to the operating expenses of the vessels; and that unless corresponding rates are permitted to be charged, the ship owners will be badly hit. The voice of the traveling public, however, has not been raised in protest but has rather approved the new requirements.

Philippines Tonnage Act.—The new act regulating foreign shipping which goes into effect on July 1, 1916, is as follows:—

At all ports and places in the Philippine Islands, there shall be collected from any vessel coming from or going to a place outside of the territory of the Philippine Islands, irrespective of nationality in accordance with regulations issued by the Insular Collector of Customs, with the approval of the Secretary of Finance and Justice, twelve and a half centavos per net ton, as expressed in her certificate of registry, or thirty-five centavos (17.5 cents gold) per thousand kilogrammes (2,204 pounds) on merchandise discharged or laden, in Philippine ports, at the option of the master or the consignee of the vessel. Exemptions are vessels not discharging or lading cargo and discharging and landing only passengers and their baggage. Vessels belonging to the government of the United States and to foreign governments, or chartered by the same, if not engaged in trade. Vessels in distress; and Yachts of the United States, the Philippine Islands, or any nation which imposes no tonnage or equivalent taxes on United States and Philippine yachts.

FINANCE

China's Salt Revenue.—A comparative statement of receipts by the Group banks has been issued by the Chief Inspectorate of the Chinese Government Salt Revenue Department to show the proceeds of Salt Revenue received from all offices during the 4 months ended the 31st March, 1915 and 1916 respectively.

Total for the 4 months ended 31st March, 1915	$24,420,000
Total for the 4 months ended 31st March, 1916	$27,384,000
Increase during latter period	$2,964,000
Balance in Group Banks at 31st March, 1916	$19,298,000
Release to order of the Chinese Government authorized by the Chief Inspectors on 4th. April, 1916	$5,500,000
Balance left in Group Banks after payment of release (exclusive of Salt Revenue Receipts during April, 1916)	$13,798,000

Japan's Domestic Loan.—The Japanese government has issued regulations for the new issue of railway bonds to the amount of 40,000,000 yen. According to the Vice-Minister of Finance, the new bonds will be redeemed within 15 years, no unredeemable period fixed for them. The interest is 5 per cent. per annum, the issue value 95 yen per 100 yen. As the underwriting banks are to get 50 sen per 100 yen, the net proceeds to the government will be 94.50 yen 100 yen. Public subscriptions were received between the 21st and 25th April, the guarantee money to be paid in at the time of subscription, being 5 yen per 100. A similar payment is to be made on May 1st, the amount of instalment being 5 yen per 100 yen, the second instalment 50 yen to be paid in on the 15th May, the third instalment 40 yen on the 15th June. The yields of the new loan will be 5.68 per cent. per annum. Compared with the railway bonds issued last autumn which yield 5.71 per cent. the new bonds can be said to be a successful arrangement for the government.

Municipal Debts of Japan.—According to investigations of the Home Office, the outstanding local debt in Japan at the end of 1915 was 326,602,113 yen in all, of which Tokyo, Kyoto, Osaka, Yokohama and Nagoya shared 177,739,247 yen. The Debts of these municipalities are as follows:—

Tokyo Utilities' Loan, 14,580,000; Electric Works' Loan, 90,098,500; Total, 104,678,500.

KYOTO

Public Utilities' Loan	17,550,000
Public, Additional	1,950,000
Total...	19,500,000

OSAKA

Harbor Works' Loan	3,026,000
Electric and Waterworks' Loan	30,220,000
Total	33,246,000

YOKOHAMA

Waterworks' Loan	617,400
Public Utilities' Loan	3,108,800
Gas Works' Loan	294,100
2nd Waterworks' Loan	7,000,000
2nd Gas Works' Loan...	2,178,447
Total	12,198,747

NAGOYA

Public Utilities' Loan...	7,816,000

Japan and German War Loot.—According to the Foreign Office, Japanese specie deposited in the Imperial Bank in Germany amounting to 5,000,000 marks, is to be seized by the German government, or held by a certain process of law, in retaliation for the retention of the German specie to the amount of 1,500,000 taels which was seized by the Japanese at Tsingtau.

The Japanese government claims that the specie in Germany in question belongs partly to the Bank of Japan and partly to the Yokohama Specie Bank. If Germany holds on to the 2,500,000 yen while Japan has taken 1,500,000 yen, there is a balance of 1,000,000 yen in favor of the Germans. But it is understood that several other sums taken at Tsingtau by Japan may offset the difference.

British Buy Japanese Bonds.—According to London advices to the Bank of Japan, the British Government has begun purchasing 1st and 2nd 4½ per cent. Japanese Sterling Bonds held by Britons. This is believed to be for the regulation of Anglo-American exchange, says the *Japan Chronicle*. For this end Japanese 4½ per cent. Sterling Bonds can fulfil the same function as American securities because payment of interest and reimbursement can be made in the United States according to the agreement made at the time of issue. The same conditions apply to Japanese second 4 per cent. and 5 per cent. bonds, but of them nothing particular is reported. The British purchase of 1st and 2nd 4½ per cent. bonds may have salutary effect upon the London market for Japanese bonds, which has been on the down grade for some time past.

Japan's Specie Reserve Increasing.—Owing to the favorable balance of foreign trade, Japan's specie holdings since last year have been increasing, but for the first three months of this year there was a decrease, the lowest figures being 493,000,000 yen. This decrease was due to the purchase of bonds for redemption and to the payment of interest on foreign debts. The loan redemption operation was, however, stopped at the end of March, and the payment of interest on foreign loans is considerably lessened. The country's holding of specie has again begun to increase, the figures at the end of March being 497,000,000 yen, or an increase of 4,000,000 yen compared with the lowest figures in the first quarter of the year. In April, the increase was rather conspicuous, reaching 499,500,000 yen in the first 10 days of the month. In the second decade of the month, the figure reached 510,000,000 yen, an increase of 17,000,000 yen compared with the lowest level of March. The specie is held in the following institutions: 390,000,000 by the Bank of Japan, of which 120,000,000 yen belongs to the Government. Some 170,000,000 yen is in Japan and of the 340,000,000 yen held abroad, 40,000,000 yen is in New York, the rest being in London.

Japan's Customs Revenue.—The customs revenue of Japan for March was 2,631,387 yen, and the total revenue from customs business for the fiscal year ending March 31 is 32,682,034 yen. This is a decrease of about 6,000,000 yen from the government's estimates of 39,987,000 yen for the year. Compared with the previous fiscal year there has been a decrease of 13,539,764 yen.

Yokohama Collects Taxes.—The Yokohama municipal authorities have announced that 1,073,088 yen in municipal taxes were collected during the fiscal year from April 1, 1915, to March 30, 1916, out of the total municipal taxes assessed of 1,329,676 yen. Of the total, 1,242,625 yen were imposed on Japanese, while the rest, 87,051 yen, were on foreigners. The total amount outstanding against both Japanese and foreigners is 256,888 yen.

Financial Independence of Chosen.—The Government General of Chosen, with a view to attaining its financial independence in the fiscal year of 1919, raised the rates of the land and tobacco taxes during the last fiscal year and has now decided to raise the sake-brewing and registration taxes and to levy income taxes on the Japanese residents from the current fiscal year.

The Government-General has been deriving Y13,200,000 from the Central Gevernment which has now cut its annual grant to Y10,000,000.

P. I. Sugar Loans Extended.—Governor General Harrison has completed arrangements whereby the P2,000,000 of government funds loaned to Negros sugar planters through the Bank of the Philippine Islands will still be available after August 1, the date on which the loans made fall due. The funds in question are loaned by the government to the bank at the rate of two per cent a year and the bank reloans the money to the sugar planters of Iloilo and Negros at eight per cent a year on the security of their crops, all the risk involved being taken by the bank.

Owing to the difficulty of disposing of sugar under present conditions, the governor general was asked to make arrangements to the end that the bank might extend the loans made, and that institution has now been notified that a reasonable extension of time will prove acceptable to the government. The term of extension has not been fixed but it is believed that two or three months will prove sufficient to enable the sugar men to dispose of their product under favorable conditions.

Philippine Customs Decrease.—A falling off of P153,980.69, as compared with the corresponding month last year, is shown in the statement of customs collections for the five ports of entry of the Philippines during March. This amount is the total decrease in all the ports of entry. Manila is responsible for P125,164.80, Iloilo for P11,520.78, Cebu for P7,897.96, Zamboanga for P4,905.32, and Jolo for P4,491.83 of the decrease. The collections for March last year were P897,025.89 in Manila, P138,350.58 in Iloilo, P98,535.14 in Cebu, P14,360.44 in Zamboanga, and P18,849.25 in Jolo while this year they were P771,861.09 for Manila, P126,829.80 for Iloilo, P90,637.18 for Cebu, P9,455.12 for Zamboanga, and P14,357.43 for Jolo.

P. I. Revenue Increase.—Philippine internal revenue collections on imported merchandise for March show P65,398.81 on the credit side of the balance sheet as compared with the collections for the same month last year, the total for all ports amounting last month to P168,054.96 as compared with P102,744.22 for the corresponding month last year.

Tsingtau Customs Receipts.—After the outbreak of the Siege War about Kiaochou in Summer of 1914, the receipts of the Tsingtau Customs for the latter half of that year amounted to only 98,000 taels. The returns for January, 1915, stood between 30,000 and 40,000 taels, gradually increasing in August to 91,444 taels. After the reopening of the Chinese Maritime Customs with Mr. M. Tachibana for Commissioner, the figures rose steadily to 95,000 taels for September, 96,000 taels for October, 98,000 taels for November, and 160,000 taels for December, which last total compares not badly with 168,000 taels for December, 1913, under the German regime. The unsettled state of the country affected the receipts for January, to which month 140,000 taels are credited, the February receipts further decreasing to 120,000 taels.

MINES AND METALS

Chinese to Develop Mines.—The action of the Chinese Central Government in creating the position of Superintendent of Mines of Hupeh Province to develop the mineral resources of the Province has brought forth some criticism from H.B.M.'s Pro-Consul J. C. Hill of Hankow. It is well known that Hupeh is rich in iron, coal, lead, and copper, and it is anticipated that antimony, silver, and possibly other minerals, can be found in paying quantities. The new superintendent intends to begin a systematic campaign of prospecting and locating, in the first instance, copper and silver mines, and two Chinese mining engineers, who were educated in Belgium, have been employed. The plan seems to be, so far as determined upon, to locate the mines and develop them on behalf of the government, selling the ores to foreigners who will have, at the present time at any rate, no interest in the mines.

According to a report by Pro-consul Hill it is laid down in a recent set of rules issued by the Hupeh provincial government that owners of mining land must, under pain of severe punishment, obtain official sanction before seeking to raise capital for the development of their property, and no proposal for the investment of foreign capital will be considered until the authorities have satisfied themselves that the funds required cannot be procured from the provincial government. Official sanction is likewise required in the case of all contracts for the sale of the output of a mine to foreigners, even when the working of the mine still remains in Chinese hands.

The superintendent selected, Mr. Kao Sung Ju, has held a number of positions of honor and trust, as under the Manchu reign he was Superintendent of Education, as well as Superintendent of Industry, of Hupeh, and is now director of the Hupeh Government Cash Bank, and codirector of Hupeh Government Mint. His office will be at Wuchang. Mr. Kao has stated that he would employ an efficient foreign mining engineer, when prospecting has been completed, for the purpose of developing the mines.

To Open Chihli Copper Mine.—According to Chinese press reports permission has been obtained from the ministry of Agriculture and Commerce by a wealthy merchant named Sun Yu-chung for the operation of a copper mine in the vicinity of Hsianghohsien, Chihli, with an initial capital of $100,000.

Mukden Foundry Co.—The Yihoshun Foundry, which was established at Mukden last September, has been renamed the Mukden Foundry Co., and will be reorganized into a share stock company on a capital of Silver Y50,000. For material Penchihu iron will be employed. Electricity is used as power. Stoves, agricultural implements, brakes, wheels, carpenters' tools, household utensils, etc., are being manufactured. The prices of the products are considerably lower than Japanese imports of similar quality.

Lead Mine on Chia River.—On the upper Chia River exists a mineral vein containing gold, silver, copper, and lead in which there are traces of random working by Chinese and Koreans. The vein is interrupted with a number of faults and it is this disadvantage that has deterred capitalists from operating this mine in earnest. An arrangement recently has been reached between the Chinese owner of a lead mine about 33 miles above Tiehling on the River and a Japanese named Shinozaki to lease the mine, and development work will be started on the arrival of engineers.

Japan Buys Chinese Cash.—Up to the end of February, dating from May last year when the purchase of copper cash was started by Japanese in Shantung, the cash exported from Tsingtau to Japan amounted to 13,000 tons worth Y4,368,000. A certain firm in Shantung province has in stock thousands of tons and the total amount of the square holed coin gathered for exportation is nearly 20,000 tons.

Chinlingchen Iron Mine.—An appropriation of Y300,000 for operating the iron mine at Chinlingchen is to be defrayed out of Japan's Extraordinary Military List when the same is sanctioned by the Cabinet council. In such event the Shantung Railway intends to take in hand the working of the mine. There is said to be repairing work to be done before the mining is actually started, and it will be the end of this year or early next year before the first ore will be taken out of the pit.

According to Japanese experts' reports the ore in this mine has been over-estimated as to quality and quantity. The percentage of iron is said to be not over 60. The magnitude of the vein was estimated by the German geologists to be about 100,000,000 tons. This estimate is pronounced as rather exaggerated. It is considered safer to put the content of ore at about 50,000,000 tons.

Japan to Work Manchurian Mines.—Progress is being made between the government of China and the South Manchuria railway company over the plans for the working of the Anshanchan iron mines in Manchuria, reports the *Yorozu*, which says it is believed that the Chinese government eventually will grant to Japanese railways the right to work the mines. The work may be undertaken by a joint enterprise of Japanese and Chinese capital, but the *Yorozu* says that although nominally the capital of the company, which will be twenty million yen, is to be taken up by the Japanese company and Chinese capitalists, yet practically all will be Japanese money.

Disaster at Fushun Colliery.—A disastrous accident took place in Oyama Pit of Fushun Collieries on April 15, while 2,000 men were at work. Out of this number a Japanese foreman, of the name of Hamaji, and about 60 or 70 Chinese coolies are missing. The dead carried out by the medical corps numbered 16. Six men of the Medical Corps were injured more or less. The Pit yields 1,400 tons per day in ordinary circumstances, but the daily output will not average over 800 tons for the time being.

Japan to Mine in Yangtse Region.—As result of a visit to China by Mr. Kishichiro Okura, heir to Baron Okura, Messrs. Okura and Co. have decided to start mining works in the Yangtsze Valley, according to the Japan Advertiser. The mines in question are about 30 miles southwest of Nanchang in Kiangsi province. The company has already obtained permission from the Chinese Government and the work will be carried on jointly with Chinese capitalists. The mines are expected to produce 350,000 tons a year.

Seoul Mining Company.—A report from Holkol, Korea, gives the following results obtained from the Seoul Mining Co.'s operations for the month of March.

	Yen.
Value Bullion Recovered	131,217.00
Value Concentrates recovered	150,916.00
Total Receipts (approx.) Yen	282,133.00
Operating Expenses (approx.)	110,000.00
Operating Earnings (approx.)	172,133.00

The Kung Kol prospects are reported to be decidedly encouraging.

Oriental Consolidated Report.—During December the Oriental Consolidated company's output was $144,472 from 26,621 tons. The three mills worked steadily as there was plenty of water, and there were few stoppages of Okura's power supply. The extraction obtained in the Taracol cyanide plant was 89%, while that for the Maibong tube-mill 106%, the latter due to a hang-over in the zinc-boxes, from the previous month, when the extraction was only 75.7%. It is hoped to be able to maintain a more even output from the Maibong tube-mill as soon as all details are arranged in routine order. The February output was $116,800, a reduction due to lower grade and a short month.

Tin and Tungsten Find in Siam.—Two all-British Syndicates, the one domiciled in Singapore, the other in the Malay States, have been quietly and unostentatiously prospecting and taking up areas in Southern Siam and Siamese Malaya. In fact, says the Penang Gazette, one of the syndicates had concluded arrangements with a big London Company for the working of one of their areas believed to be of great value only a few days before the war broke out.

The managing director in Siam of both these British syndicates has continued prospecting and we now understand, that besides three valuable tin areas acquired in the Monthon of Nakon Sri Tammarat, he has quite recently found an extensive and rich wolfram deposit in a district never before, it is believed, visited by any European. This deposit, both lode and alluvial, extends over several square miles and has the rare advantage of an inexhaustible supply of water running through the centre of the property.

In Siamese Malaya he has discovered and acquired another rich alluvial and lode tin area. This has been named the Layston mine and may be the mine written about by John Smith 200 years ago, in his fables of Malaya.

U. S. Dredges in Malaysia.—Dredging operations in the Federated Malay States and Siam have for the past few years assumed considerable importance. Recovery of tin is the principal object sought. Practically all of the operators are English companies and chief among these is one known as Malayan Tin Dredging, Ltd., which has approximately 1,200 acres of tin-bearing lands in the Kinta Valley at Batu Gajah station, Perak. The property has been drilled throughout at close intervals and four special Lobnitz bucket dredges are now in operation, with another to be put in service in the near future. It is estimated by the company that one of these machines will clean up 8 to 10 acres per year. A number of dredges of American build were constructed during the year for companies operating in the Peninsula. These include one 7 cu. ft. Bucyrus dredge with steel hull, for a company known as Tin Bentong, which will be installed at Kuala Lumpur, and one 5½ cu. ft. Bucyrus dredge, also with steel hull, for the Tin Mines of Siam, Ltd., a subsidiary of the East Asiatic Co. of London. This dredge will be used in the Pong district of Siam.

Burmese Tungsten Supply.—Efforts to increase the wolfram (tungsten) industry in Burma, are already bearing fruit in Tavoy, which is the centre of mining. Since December, Tavoy has become almost a metropolis. The present production tops 200 tons and the required quantity after March is 350 tons monthly. Over 8,000 Chinese and Indians are at work, with the object of augmenting the output. The important increase is reported of 484 tons in the annual output of wolfram, which makes the output 2,115 tons. It is hoped in official circles that the output for the present year will reach 4,000 tons.

Fire Clay of Fuchou.—Fuchou fire clay was quoted at about Y12 per ton for delivery in Japan last year and has competed with the Iwaki output quoted at Y15 per ton until the rise of freights and short tonnage which have thrown the export of this article to Japan out of the question. The consumption by the Ceramic Division of the S. M. R. Co., Central Laboratory, and the Railway Workshops at Shahokou combined, is measured at between 4,000 and 5,000 tons per annum and a larger market is to be sought in Japan. The most likely customer is the Government Steel Works, Edamitsu, whereto the bulk of last year's consignments was destined. The Fuchou output is of excellent quality. The clay belt covers about 9,000,000 *tsubo*. If the steamer freight should be brought down to a more workable level, exportation to Japan might be resumed with a promise of a fair profit.

U. S. Army Coal Award.—The contract for supplying the United States Army in the Philippines with 60,000 tons of coal, and for which bids were opened on March 1, has been awarded to the Kailan Mining administration with head offices at Tientsin, China. The contract calls for delivery at Chinwangtao, China, the army to furnish the transportation of this amount of coal, each ton to consist of 2,240 lbs. The prices submitted by the Kailan Mining administration for Kaiping bituminous coal are $2.50 (U. S. Currency) per ton for lump coal and $3.00 for washed nut coal. The contract provides that if any portion of the coal contracted should necessitate lightering, the contractor should receive $0.50 for each ton thus lightered, provided that the amount does not exceed 15 per cent of the total amount. Other bidders in this award were Madrigal and Co., and the Mitsui Bussan Kaisha, whose lowest price for delivery of Japan coal in Manila was P13.75. ($6.87 U. S. Currency) a ton. The army cement contract has been awarded to Wise and Company who bid on 45,000 barrels to be delivered at Chinwangtao, China, the army to furnish transportation, at the rate of $1.625 per barrel.

Tayabas P. I. Coal Seams.—Coal deposits in the hills back of Lucena, Tayabas, are the attraction which has led local capitalists to plan the formation of a mining company with an initial capital of P500,000, which will number among its incorporators Mauro Prieto, Tomas and Manuel Earnshaw, Teodoro Kalaw, Jose Lim, Doroteo Trinidad, and Vicente Madrigal.

It is said that analysis of the coal obtained from the Tayabas deposits shows it to be of excellent quality, and the promoters hope to be able to place sufficient quantities upon the local market to materially decrease the importations from Japan and Australia. The annual importation of coal from foreign parts is more than half a million tons, on an average. Previous attempts to develop coal deposits in the Philippines have not proved particularly successful, but the men interested in the present project are of the opinion that transportation facilities available and the quality of the deposits are sufficient to insure the success of this new venture.

Philippines Drilling Wells.—The Philippine Bureau of Public Works has completed nine new artesian wells, as follows: Caloocan, Rizal, 412 feet, 20 gallons per minute; Quezon, Nueva Ecija, 374 feet, 25 gallons per minute; Los Banos, Laguna, 385 feet, 15 gallons per minute; Salasa, Pangasinan, 15 gallons per minute; Ligao, Albay, 315 feet, 15 gallons per minute; Ayuquitan, Oriental Negros, 135 feet, 30 gallons per minute; Aguilar, Pangasinan, 255 feet, 20 gallons per minute; Tanza, Cavite, 332 feet, 30 gallons per minute; Asingan, Pangasinan, 334 feet, 20 gallons per minute.

Malay States Tin Output.—Statement of block tin and tin ore exported, and approximate value (in Singapore currency) during the 3 months January, February, March, 1916, and comparison with corresponding period of previous year is as follows:

	Block Tin		Tin Ore (70 per cent. of gross weight)	
	1916 pkls.	1915 pkls.	1916 pkls.	1915 pkls.
Perak	7,178	9,205	110,003	105,541
Selangor	11,685	7,995	43,112	52,497
Negri Sembilan		9	4,049	5,584
Pahang	1,694	2,143	13,535	15,726
Total ...	20,558	19,354	170,702	170,348

Approximate Value

	1916	1915
Perak	$10,349,774.30	$8,810,609.58
Selangor	4,832,707.54	4,643,201.92
Negri Sembilan	355,210.22	423,783.56
Pahang	1,346,136.45	1,383,330.58
Total	$16,883,828.51	$15,260,925.64

ELECTRICAL PROJECTS AND APPARATUS

Will Light Kungchuling.—The plan of forming an electric light company at Kungchuling, as presented to the South Manchuria Railway Co., has been approved of by the Railway Company. The new company's shares are to consist of 1,000 of Y50 each, of which number one-half is to be subscribed to by the Railway Company. According to a recent investigation the number of subscriptions to the lighting service is about 2,200 lamps, which figures are, however, expected to rise to about 2,500 lamps by the time the works are actually opened.

Installation at Liushutun.—Governmental permission for the establishment of an electric light plant at Liushutun is not yet granted but preparations are being pushed forward and orders for the necessary machinery, etc., have already been placed in Japan. Work is to be started as soon as permission is given. The service will be opened some time in June or July.

Russia Buys Telephones.—The Russian government recently placed with the Japanese manufacturers an order for telephone apparatus and wires to the value of about three million yen, according to Mr. Tanaka, director of the communications bureau. The Nippon Electric Company, the Oki Shokai, the Kyoritsu Electric Company and others with whom negotiations were concluded are to supply the order in one year's time. This is the first order from a foreign country to the Japanese manufacturers of telephone apparatus and wires.

Siam Electrical Co. Sales.—The sales of current in Siam for light and power during the last three years have been:

1913 Tcs. 1,052,879; 1914 Tcs. 1,081,813; and 1915 Tcs. 1,041,236. Rent of meters in 1915 Tcs. 5,749 higher than in 1914 and Tcs. 13,065 higher than 1913. The traffic receipts (passengers) on the Bangkolen Electric line are lower than in 1914 but higher than in 1913. The Samsen line seems steadily improving on last year's figures which were Tcs. 13,978 better than in 1913. The profit on light and power was—1913 Tcs. 840,518; 1914 Tcs. 920,221; and 1915 Tcs. 959,716. The profit on the Bangkolen line was—1913 Tcs. 295 938; 1914 Tcs. 313,779; 1915 Tcs. 316,322. The profit on the Samsen line was—1913 Tcs. 109,942; 1914 Tcs. 132,166; 1915 Tcs. 130,172.

BUILDINGS

New Peking Offices.—A new building will be erected for the Peking offices of the Audit Department on the site of the former building of the Ministry of Navy. The cost of construction is estimated at $240,000.

British Legation Improvements.—The British Civil Service Estimates for the year ending March 31, 1917, have been issued, and include Provision for water supply, heating system, electric generating plant and ice-making plant, at Peking to cost £600. The total estimates for the Consular service in China (partly repayable from Indian revenues) are £76,263—last year's total being £73,678.

Philippine Plan Postponed.—Falling into the same pit with the proposed government sugar central in the town of Isabela, Occidental Negros, and the new post office building of the city of Manila, the new Manila custom house will have to be forgone for sometime to come on account of the tremendous rise in the price of building materials in the world's markets. The legislature has already set aside a total amount of P1,000,000 for the complete construction of the project, but with the present prices of construction materials, P500,000 more will be necessary. Some months ago, bids were advertised by the public works authorities for the construction of the foundation of the project and six local contractors offered bids, the lowest of whom was John Gordon. Due to the advice given by the secretary of commerce and police, all these bids have been rejected.

MANUFACTURES

China Tea Improvement.—Chow Tze-chi, when Minister of Agriculture, recently obtained funds for the inauguration of a department for the improvement of tea. The Ministry has therefore requested the Governors of Anhui and Fukien and other provinces producing tea to obtain the best experts and to send them to Peking for service in the new department. According to a report issued by the Ministry the export of red, green and brick tea in January and February aggregated 260,000 piculs, 60 per cent of which was exported to America and 40 per cent to Russia.

China's Aeroplane Factory.—According to the Imperial News the Chinese Government will establish a factory for the manufacture of aeroplanes. The services of two American and two German engineers have heen engaged for the factory, which is to be located in Honan.

Dairen Bean Mills.—The total outputs of the Dairen Bean Mill Union during February were 2,078,000 pieces, being a little over 59 per cent. of the maximum aggregate producing capacity. The figures for the leading plants were:—

	Pieces.		Pieces.
Nisshin.........	143,000	Chengyuchang...	61,000
Santai	110,000	Chuchenghsiang.	56,000
Kodera	92,000	Tungyungmao ..	52,000
Lishengli	78,000	Fuyuan	53,000
Saito	74,000	Hsinshunhung. .	43,000
Fushuncheng.	65,000		

Manchurian Bean Oil for U. S.—Shipments of bean oil from Dairen to the United States were on a very small scale till the end of February when matters assumed a lively aspect. During the first decade of March, 52,868 piculs of bean oil were exported to America, and in the middle decade a direct consignment from Dairen amounted to 78,800 piculs. With the recent rise of silver, the price of bean oil stood on the 23rd inst. at S. Y11.90, as compared with S. Y10.03 on the corresponding date of last year. Such a broad difference in price ought to have dulled demands in America, but the cotton crops in the United States of last year totalled only 11,000,000 bales as against 16,000,000 bales of the previous year and this decrease had the effect of causing a rise in cottonseed oil, creating a demand for bean oil as a substitute.

Japan's Cotton Mill Outlook.—The end of the semi-annual business term for most of the cotton spinning mills comes at the end of May, and directors of various spinning mills are deliberating as to distribution of profits, but their concern is not due, says the Japan Advertiser, to their anxiety to distribute as large a percentage as possible but to their intention to pretend that the profits were not so enormous as is generally believed. It cannot be denied that the profit of the spinning industry was exceptionally big for the present term for the following reasons:—

The American cotton has been continually cheap, the price of cotton yarn has always been higher than the average price of foreign raw cotton, the internal trouble in China has had comparatively little effect upon the export of cotton yarn, the stoppage of British supply of thin yarn in China has called for a substitute supply from Japan and the export of thin yarn textiles for China has become prosperous.

The mills which have profited most are the Amagasaki, the Toyo Boseki and the Goto Boseki. Most of the other companies have of course secured a profit greater by 20 or 30 per cent. than in the previous term. The general impression among those interested is that the Amagasaki will probably pay 40 per cent., the Toyo Boseki 20 per cent. and the Goto Boseki 20 per cent.

Japan's Paper Mills Busy.—As a result of the war and a consequent limitation of supplies, the paper mills throughout Japan are either extending their plants or establishing pulp mills.

Some manufacturers have already completed the installation of their new equipments. The

production of paper is expected to make striking progress during the next few months, the extent to which the various mills will share in increased production being about as follows:

The Oji Paper Company has ordered from America a paper-making machine which can produce newspaper at the rate of 2,000,000 lbs. a month. It will be installed at Tomakomaki Mill in Hokkaido by the end of January next year. The Mitsu Bishi Paper Mill is to install two Swiss paper-making machines early in 1917, at the new factory in the suburbs of Tokyo. The machines can produce extra grade printing paper to the extent of 1,200,000 lbs. a month. The Fuji Paper Company will put two modern machines of Japanese make into operation at the Kanzaki Mill by the end of June to increase its monthly production by 700,000 lbs.

The Kyushu Paper Company has installed two Japanese made machines at its factories, to be in full operation by June and increase the company's production by 700,000 lbs. a month. A new American type machine has been ordered by the Kokura Paper Company from a Japanese machine factory to be in full working order by August, to make inferior grades of printing paper to the extent of 400,000 lbs. a month. The Kumano Paper Company has secured three new machines which will be in operation by the end of May when the company's capacity will be increased by 900,000 lbs. a month.

Eleven new machines added to the existing paper plants with a combined productive capacity of nearly 6,000,000 lbs., represents more than 15 per cent. of the entire production at the present moment. In addition a new mill is being established in Oita prefecture for the production of rice paper. In view of the good return from this special line the Toyo Paper Company is believed to have decided to establish a new plant with the same object.

Demand for Japanese Umbrellas.—The export of foreign style umbrellas made in Japan has for years been making progress, the recent average being 1,800,000 yen a year. The umbrella makers lack material, and are now unable to make as many umbrellas as demanded for export and for home use. The Toyo Shokufu (Weaving) Co. has bought a factory and plant in Kirin from the Nippon Seifu (Cloth Manufacturing) Co. for weaving cloth for umbrellas, with 150 looms in perfect working order and 2,000 yards of cloth are being turned out every day. It is expected that 400 looms will be in working order before the end of the year when 5,000 yards a day can be turned out.

New Manchurian Tannery.—After months of experiments Mr. Fujita, who was formerly in the employ of Messrs. Okura & Co., has leased a tract of land comprising 2,500 tsubo at the north of the present temporary tannery. On this site a new factory building is to be raised with an annual output of at least Y170,000. Water about Dairen is rather hard and this presents a difficulty.

Japanese Rock Candy.—The manufacture of rock candy in Hamamatsu has recently made remarkable progress and two factories, the Horiuchi Rock Candy Co. and the Nakamura RockCandyCo. have ceased competition and opened a common sales department. The production last year was 1,700,000 *kin* (*kin*=1⅓ pounds) of which 1,000,000 *kin* was turned out by the Horiuchi Co. and 700,000 *kin* was by the Nakamura Co., the value of the product being 460,000 yen in all. Of this amount, 1,200,000 *kin* was disposed of for home consumption. About 500,000 *kin* was exported, of which 300,000 *kin* went to Shanghai and 100,000 *kin* each to Tientsin and Tsingtau.

Japanese Munitions Export.—Munitions of war already contracted for with the Japanese Government to be supplied during this year amount in value to Y.110,000,000 approximately, of which Y.80,000,000 worth is to be supplied by the War Department, Y.10,000,000 by the Navy Department while Y15,500,000 is the price of the three men-of-war, captured by Japan in the Russo-Japanese War, to be restored to Russia. Exact figures for orders to private merchants and manufacturers are not available, but are estimated at about Y.130,000,000. It is therefore expected that the value of all war munitions to be supplied by Japan to the Allies during this year will aggregate Y.240,000,000.

FORESTS AND PLANTATIONS

Reforestation in Chekiang.—The celebration of Ching-ming or Feast of the Tombs was held with a new and significant feature at Hangchow this year, in the observation of arbor day. It was the first observance of this day in the province and the beginning of a conservation movement which will have great bearing on the industrial life of the Province.

Since Mr. D. Y. Lin's trip up river with the Civil Governor a year ago conservation work and conservation sentiment have been quietly developing. As a result of this trip the Governor gave orders that each local magistrate in the province should plant 150 mow of trees each year. During the past few weeks more than twenty thousand trees have been set out on the hills around West Lake and within the present year three million seedlings and trees are to be put out. A larger part of the trees being put out now are firs which will grow to usable size within twenty years. The same work is going on in other parts of the province though not on so large a scale. Mr. Chen Pao-chin is also directing the work of reforesting the hills, giving full time to the work without salary at present. As returns come in he is to get ten per cent of the income. It is hoped by the officials that this plan will be adopted generally throughout the Province.

Reforesting China's Sacred Mountain.—The important question of reforestation is at last receiving attention here at the famous mountain Taishan which has been bare for so many years. A new official, Mr. Shen, has arrived and has thrown himself heartily into the plans laid down by the Government for reforestation. A few days ago all of the schools in the city, led by the official, marched to the side of the mountain and there planted about a thousand trees, the official himself planting two. The boys of the Methodist High School observed Arbor Day by planting a hundred trees on their new campus outside of the West gate of the city.

A movement that means still more for the future of this mountain is the purchase of a large tract of land in the South Suburb that will be devoted to raising trees for planting on the mountain. Many thousands of seedlings will be started this year in the hope that the old mountain will be covered with trees before many years pass. Still another special effort is being made to improve the mountain by a certain group of men who have applied for the right to develop a tract of land back in the mountain. Formal consent has not been received but it is expected that the work of planting orchard and other trees will begin soon.

To Map Samar Forests.—Graduates of the forest school of the University of the Philippines will undertake a reconnaissance survey of forest resources of Samar island. This will be the first reconnaissance of the island of any consequence that has been undertaken as yet. Although it is known to the bureau of forestry that many valuable varieties of commercial timber are found in Samar, its extent and location has not been looked into to date. It will be the work of the party to prepare a careful and as accurate as possible forest map of the island, showing the location of the stands of the different commercial timbers, their extent, the location of navigable rivers, the best sites for sawmills, and the general characteristics of the timber regions.

Coffee in Mindanao.—Governor Gilsheuser is giving considerable attention to the revival and extension of coffee culture in the Lanao lake region. During the past 18 months he has induced one Amai Kurat to set out about 50,000 coffee trees on his place at Saguiaran. The site selected for the plantation is a sheltered valley about three kilometers back from the Overton-Keithley road. The location is considered to be ideal for coffee. As part of the campaign to extend coffee culture in Lanao, the schools have undertaken to propagate 500,000 plants in the school nurseries for general distribution. The majority of the plants will be grown at the Lumbatan Agricultural School.

CHEMICALS & DYESTUFFS

Yokohama's Chemical Output.—According to an investigation made by the Yokohama municipal office, the total amount of chemicals produced in Yokohama last year was 58,864,391 pounds, valued at 435,313 yen. Of sulphuric acid there were 58,333,333 pounds, caustic soda, 484,800 pounds; alum, 47,000 pounds and ammonium sulphate, 9,258 pounds, Compared with the figures of the previous year there was an increase of 145,313 yen in value.

Sulphuric Acid for Russia.—The demand for various drugs for war use is brisk, and has caused a remarkable rise in prices. Sulphuric acid is in strongest demand, and to fill a big order placed recently, practically all the big factories in Japan have combined. The price is now 25 per cent higher than at the end of February, or about 25 yen per case.

Mr. Fujii, acting Consul General for Japan in Harbin, reports to the Foreign Office here to the effect that complaints have been heard that along with the increase of the import of Japanese drugs there, a great proportion has been found to be bad in quality. The latest instance is a certain amount of sulphuric acid from Japan and a part of it congealed. As this has happened more than once, the Novosri Dies published an article warning the people that many Japanese drugs were poor and Russian merchants have suffered considerable losses because of the defective quality of these drugs. Stocks have been confiscated and destroyed.

Japan's Glut of Dyes.—The enormous rise in the price of dyestuffs has caused dye-making concerns to be started in various places of this country. The making of vegetable dyes, for some time neglected, has been recommenced. Already the making of chemical dyes in black and brown, mainly from carbolic acid, has been started though on a small scale in many provinces. In Fucho, in the province of Bingo, seven or eight dye makers have started shops in one street. The industry has gradually assumed a general character with a tendency toward over-production. These country dye makers insisted at first on 450 yen per 100 *kin*, but this has now been lowered to 300 yen. Calculated on the basis of the present price of the imported carbolic acid, 300 yen per 100 *kin* does not give any profit to the makers, showing that the production is excessive. The makers are said to be in financial difficulties. It is a misconception that a dye famine is probable.

Phosphorus in Japan.—The manufacture of red phosphorus, started immediately after the outbreak of war in view of the scarcity of the goods in the market and the consequent rise in the price, has already reached a high state of development with three big manufactories, the foremost of which is the Nippon Electric Chemical Industry Company, of Tokyo, the next largest being the Fuji Electric Chemical Industry Company in Shidzuoka prefecture. There is also the Electric Chemical Industry Works at Takata, Niigata prefecture, using 2,500 tons of phosphate as raw material annually. A new company has been promoted at Sakai, Osaka prefecture, by the Umebachi Iron Works whose new works will begin operations next month, having bought 50 tons of phosphate as raw material from the Mitsui Bussan Kaisha.

India's Indigo Crop.—A final forecast of the area under indigo in British India, based on reports received from the provinces, gives a total for 1915-16 of 314,000 acres, or 112 per cent. in excess of the finally revised area of 148,400 acres of last year. The total yield of dye is 39,900 cwt., as against 25,200 cwt., the revised estimate for 1914-15, or an increase of 58 per cent.

The average outturn per acre, however, works out at 14 lb., as against 19 lb. in the preceding year. The increase in area is due to the high price of indigo on account of the war. The season has not, on the whole, been favourable for the crop, except in Madras, where the crop is generally reported to have done well.

COMPANIES

Japanese Companies.—According to the provisions of the Commercial Code now in force, in Japan, trade-companies are of four descriptions; namely, partnerships, limited partnerships, joint-stock companies, and joint-stock limited partnerships.

Under the old legislation trade-companies had no means of attaching security to the debentures they proposed to issue; and consequently they experienced no little inconvenience in raising the necessary funds for the conduct of their business. To remedy this defect, the Law of Trusts for Secured Debentures was, simultaneously with the Railway, Factory, and Mining Mortgage Laws, promulgated in March, 1905; and the Tramway Mortgage Law was promulgated in April, 1909. In virtue of these laws, a company may on the one hand mortgage its property and issue debentures thereon, while on the other, official recognition is given to the establishment of trust companies whose object is to engage in trust business connected with secured debentures. The total amount paid-up of the share-capital or contributions in money of a trust company must be not less than a million *yen;* and its business is under the control of the competent authorities. In the event of a company proposing to issue debentures secured on things, such issue must take place according to the contract concluded under a trust-deed with a trust company; and a company which proposes to invite subscription in a foreign country for its debentures secured on things, may, with the permission of the competent authorities, conclude a contract with a foreign company.

The security on things to be attached to debentures is limited to the following:—

(1) Pledge of movable property;
(2) Pledge of a claim under a written instrument;
(3) Mortgage on immovable property;
(4) Mortgage on vessels;
(5) Mortgage on railways;
(6) Mortgage on factories;
(7) Mortgage on mining;
(8) Mortgage on tramways;
(9) Mortgage on canals.

A company which proposes to invite subscription for its debentures may under a trust-contract authorise a trustee company to make such invitation; and the trustee company may itself take up, or cause a third party to take up, the entire amount of the debentures. The security on things under a trust-contract belongs to the trustee company for the benefit of the entire debenture rights specified in the trust-deed; and the same company is under obligation to reserve and exercise the security right for the benefit of all the debenture-holders.

TRADE AND COMMERCE

Japan's New Trade Record.—The foreign trade of Japan for the first three months this year set a new record in the history of the country. Exports amounted to 217,400,000 yen, while the imports were 175,152,000 yen, making a total of 392,552,000 yen. The figures for the corresponding months during the past five years are as follows:

	Exports Yen	Imports Yen	Total Yen
1912 ...	106,074,000	165,702,000	271,777,000
1913 ...	138,432,000	190,474,000	328,907,000
1914 ...	154,257,000	198,973,000	353,230,000
1915 ...	140,683,000	127,237,000	267,921,000
1916 ...	817,400,000	175,152,000	392,552,000

The exports up to April 10 showed an increase of 54,000,000 yen, compared with the same period last year. Of this increase 34,000,000 yen was shared by 7 kinds of goods only, and of these again raw silk alone showed an increase of 23,000,000 yen. Other increases were in wool cloth and leather goods for war purposes, copper, cotton goods, matches and lumber. Imports increased 33,000,000 yen of which some 20,000,000 yen was shared by raw cotton, wool, oil cake and iron materials, the cotton being responsible for 17,000,000 yen.

Addressing the conference of the Chambers of Commerce session on April 14, and using the above figures as his text Count Okuma said:

"The European war has incidentally given Japan a unique opportunity for economic progress. In only a year and eight months Japan's wealth has been increased by 2,000,000,000 yen. Thanks to the low prices of general commodities and to Japan's specially favorable geographical position, her foreign trade this year, it is estimated, will have a favorable balance of about 250,000,000 yen, while it was 170,000,000 yen last year. The exports, it is estimated, will reach 1,000,000,000 yen. Even the lowest estimate is over 800,000,000 yen. The imports will not exceed 700,000,000 yen. Besides the trade balance, Japan will get also 100,000,000 yen in freight this year.

"It is regrettable that in this time of national economic expansion Japanese manufacturers have resorted to the indiscreet production of inferior goods. The bulk of Indian trade has now trebled since the war began and the future prospects are very promising. But complaints are heard that Japanese goods are not fit for use. Thus the Japanese are about to lose the market once opened. In this respect, the Tokyo goods are generally free from such complaints, both in the quality of the goods and in the way of packing. The Nagoya goods are also not much complained of. But the worst examples are the Osaka goods. As Osaka is an important center of Japan's manufacturing industry, those concerned in business there should bear this in mind and try to prevent this evil."

Big Drop in Japan's China Trade.—Japan's China trade has received a serious setback, resulting in a fall in the value of exports and imports by millions of yen. According to the Japanese press this obviously is accounted for by the reaction following the record expansion witnessed during the closing days of March. According to official returns published by the Finance Ministry the exports to China during the opening days of April are valued at 4,631,608 yen, against 6,239,795 yen for the preceding ten days, while imports from that country are valued at 2,536,039 yen, against 3,677,473 yen for the preceding ten days. The exports to China during the opening 10 days of April were distributed as follows:

Manchuria, 413,781; North China, 1,870,887; Central China, 2,329,714; South China, 17,226.

Imports from China during the same 10 days were: From Manchuria, 163,760; North China, 717,693; Central China, 1,252,176; South China, 402,410.

Nippon Porcelain Extending Plant.—The Nippon Porcelain Company, of Nagoya, which is under the management of Mr. Magobei Okura and family, has planned an extension which when completed is expected to result in increased annual production to the value of 500,000 yen. The company has had 14 kilns of the intermediate sizes in use, with a force of 3,000 employees. It is therefore proposed that three large kilns be installed, at once to be followed later by seven others, thus doubling the plant in actual operation.

Japan's Sugar Production.—The latest, and probably the most accurate estimate, places the total result of Japanese sugar milling this season at 4,900,000 sacks. This is an increase of 200,000 sacks over the estimates on which the new sugar disposition agreement now in force is based. If another and what is usually regarded as a reliable report be given credence, the excess will reach the high figure of 400,000 sacks. The problem now to be solved by sugar men is the disposition of this surplus which must be sold in overseas markets. The market now presents a livelier aspect, buyers being willing to take all the centrifugal offered at 17.55 yen per picul.

Chefoo Tussah Filatures.—With the return of the Chinese working hands from their old Chinese New Year festivities at their homes, all the tussah filatures at Chefoo have resumed operation. This is unusual for never in recent years did all the filatures, now numbering 42, resume work without exception immediately after the holidays. Demands for pongee silk from Europe and America have increased by leaps and bounds, and each filature is buzzing away on full time with a long series of orders to fill. Wild cocoons are quoted at 1.5 taels per 1,000 grains, and in some cases as high as 1.8 taels, as against only ½ tael in 1914. Pongee silk yarn has come up gradually since last Summer from 250 taels to 330 taels. Still the net margin of gain for the manufacturers is said to be exceedingly narrow because of the abnormal rise of the cocoons. Exports for last year reached the record amount of 18,159 piculs worth Hk. Tl. 4,359,000, compared with 8,344 piculs worth Hk. Tl. 2,044,000 for 1914. Not only pongee silk yarn but fabric has been more brisk. As against 6-7,000 piculs exported in an average year, the total increased last year to 20,000 piculs valued at Hk. Tl. 7,000,000, an amount greater than the sum total of both silk yarn and silk fabric for an ordinary year put together.

China Materials for Japan.—Japan's trade with China is becoming very prosperous. One feature is that the imports from China are growing rapidly, says the Japan Advertiser. There were imports valued at 18,217,000 yen this year up to March 20 from China, including Manchuria. The figures showed an in-

crease of 7,947,000 yen compared with those in the corresponding period last year. The cause of this prosperity is that since certain raw materials from European countries have been scarce owing to the war, Japan has relied upon China for substitutes. Japan has recently made remarkable progress in chemical and other manufacturing industries, and has wanted more raw materials. The list of the imports from China shows that these are mostly raw materials or half-made goods which Japan has to finish. Following is the list of principal items of import from China:

	Jan.-Feb. 1916	Jan.-Feb. 1915
Cow and buffalo hides ...	Y837,475	Y411,863
Raw and ginned cotton ...	2,335,806	1,369,173
Hemps & ramie	540,202	244,479
Mineral ores	536,670	22,945
Zinc	378,086	28,831
Quicksilver	123,315	—
Brass and bronze	1,145,361	—
Antimony and sulphide of antimony	1,190,817	—

China Beef for Philippines.—Proposals for the 6,000,000 pounds of frozen beef for the use of the United States army in the Philippines showed William Katz of Shanghai was the lowest bidder. This is the first time that he has entered the local field. Mr. Katz' bid was $0.095 per pound, f.o.b., steamer, in China, or $0.125 per pound, c.i.f., Manila, United States currency. The Queensland Meat company's bid was $0.1325 per pound c.i.f., Manila; Swift and company bid $0.1148 per pound, f.o.b., New York, and the Western Meat company bid $0.1195, f.o.b., San Francisco. In view of the increase of nearly 100 per cent in the price of coal, bids for which were opened recently, the authorities anticipated a decided increase in the price of beef, and are naturally gratified at receiving proposals at a price even less than that now being paid. Some idea of the advance in freight rates is given by the difference in the price quoted on board vessel in China and the price asked for meat delivered in Manila, the difference on the six million pounds amounting to P360,000.

Indian Cotton for Japanese Mills.—Arrangements have been made for the provision of ships to deliver in Japan 1,370,000 bales of cotton from India in 1916, as against 1,230,000 bales in 1915. The present arrangements provide for the carriage of 600,000 bales by the Nippon Yusen Kaisha in ten ships, 450,000 bales by the Osaka Shosen Kaisha in six ships, 80,000 bales by the Peninsular and Oriental Co. in monthly or bi-monthly steamers, and 240,000 bales in chartered ships at the rate of two per month for six months.

PETROLEUM

Japan's Gusher Slowing.—It is reported that the Nippon Oil Company's famous gusher in Kurokawa, Akita Prefecture, having gradually decreased its output, and the prospects of other wells there being far from what is desirable, the company now attaches more importance to the new wells in Hokkaido than to the Kurokawa wells. Upon the discovery of the Kurokawa gusher, the company had entered into a contract for the supply of crude oil for a given amount for three years with the T. K. K. and also with the Furukawa Mines. But as the output in Kurokawa has decreased, the company, bound by the standing contract, has had to supply the oil from Northern Echigo province. Such being the case, the company is now unable to use the crude oil for refining and unless there is a substantial increase in the production from Hokkaido, the supply of home oil tends to decrease. The supply of foreign oil also continues to decrease. The imports in recent years were:—

	Gallons
1913	47,000,000
1914	34,000,000
1915	33,000,000

In January this year, the import was only 2,580,000 gallons, the lowest monthly record.

Australia's Oil Strike.—Discovery of the first gas and petroleum field on the Continent of Australia has been made near Grafton, on the Clarence River, in the extreme north-eastern part of New South Wales.

The oil and gas supply nearest Australia was that discovered in recent years in New Guinea. Australia annually has bought more than $10,000,000 worth of gasoline, benzol, lubricating oils, and other petroleum products from the United States.

Metal Markets in 1915

The 12 months of 1915 have made up the greatest year that has ever been for the mineral industry, says the Mining Journal of London. Not only will the world's output in some of the most important departments of metal and ore production be the largest ever known, but the profits in many cases are on a scale which may be said without fear of exaggeration to surpass the dreams of avarice. Such statements may seem in this country hyperbole, but their truth will be quickly realised when the figures appearing elsewhere in this issue for the American outputs are studied, and it is exceedingly necessary that all interested in the mineral industry should realise this, more especially our traders, where the parrot-cry is invariably repeated: "There is no business to be done until after the war."

It is computed by the United States Geological Survey that in the principal metals alone there was an increase over 1914 of $250,000,000. Copper showed an improvement of $83,000,000, more than the total value of the whole production of 1914. Spelter showed an increase in value of over $100,000,000, compared with a total value in 1914 of $36,000,000. Increases like these can hardly be realised, so enormous are they, and they ensure immense prosperity and development to these branches of metalliferous mining for a long time to come. Compared with copper and spelter, the improvement of lead, which with an aggregate of $53,000,000 showed an improvement of 22 per cent, seems almost puny, though in ordinary years such an advance would be very remarkable. In the precious metals improvements were shown, though naturally not of a spectacular character.

It is estimated that the gold output increased by 350,000 ozs., giving a total for the year of, approximately, 4,842,000 fine ozs. Silver, in contradiction to what has been published in this country, showed an increase of quite 4,000,000 ozs., giving a total of, roughly, 72,000,000 ozs. The iron and steel revival came too late to permit a record output, yet here values represent an increase of over $27,000,000 on the 1914 figures, and the total ore production is inferior only to 1910 and 1913. The fuel industry does not show much change as regards output, which, with an increase of some 4½ million short tons, shows a gain of about only 1 per cent., but the late development of the trade boom accounts for this condition even more than it does for that of iron and steel.

The coal by-product industry, however, was taken up on a great scale, and a number of large plants were erected for the recovery of benzol and allied products. Consequently there will be considerable values to be allowed for this new industry, to say nothing of its importance in supplying the necessary raw material for the manufacture of dyes and high explosives. The chemical industry generally has, no doubt, received a great impulse, as may be seen by reference to the sulphuric acid trade, where the output of the higher class product was more than doubled.

The production of petroleum added another record year to the long succession of increases which the American industry has recorded. The total output is estimated at 291,400,000 barrels, compared with 265,762,535 barrels in the previous year. There is a considerable branch of lesser products, the development of which has been stimulated by scarcity due to the war. Thus the output of quicksilver increased by 25 per cent, but more than doubled in value. The output, 20,681 flasks, was the largest since 1912, but the value, $1,768,225, the highest in the last forty years. The average San Francisco quotation was $85.50, against $49.05 in the previous year. There has been marked development in the output of antimony, though the figures for the year are not yet available.

The tin output from Seward Peninsula, in Alaska, which was about 200 tons, was the best known. Returns for the rare metal ores are as yet unavailable, but there can be little doubt that they will show a considerable increase. As the "metals" were the earliest to experience the rise in prices, it follows that the Western States have the best showing for the year. Individually, the following States showed prominently: Montana showed an increase of 81 per cent. over the figures of 1914, and the figures ($87,000,000) are, of course, a record. Arizona increased the value of her metal output by over 50 per cent., with a total of $88,551,000. The improvement was mainly due to copper, but there was a large advance in zinc, and a considerable one in lead. Next came Utah with a total value of $55,000,000, an increase of about 50 per cent. on the previous year.

Complete figures for California are not yet to hand, but there is an increase in gold and silver, and a larger one in copper, zinc, and probably petroleum. Colorado is estimated to have yielded $43,100,000, an increase of nearly $10,000,000 on the year. Idaho with $37,780,000 showed an increase of 53 per cent. on the previous year's figures. This, again, was due to increases in copper, lead, and zinc. Nevada with a total of $34,566,000 showed an increase of close on 18 per cent. in value. The output of Alaska is valued at $32,000,000, by far the highest ever recorded. This is chiefly due to the great output of copper, which amounted to 83,850,000 lbs., against 21,450,628 lbs. in 1914. New Mexico improved her returns by about 60 per cent. with a total of $18,277,000, compared with $11,050,000 in 1914.

These results for the leading States of the West showed how widely the wave of prosperity has spread in the mining industry. Owing to the strong position of so many of the great concerns which handle and sell mineral products in the States, there has been no hesitation or inability to take hold of the opportunity which has presented itself. What has been done in the zinc industry is simply revolutionary, and while to-day in Great Britain the output of spelter is perhaps less than it was before the war, when it approximated to 60,000 tons, the United States capacity has been practically doubled, with a potential output of 650,000 tons in the coming year.

It is very easy to say the United States has had all the cards, but there has been no hesitation in playing them to score as quickly as possible, while over here there is general disposition to "wait and see," and while there is a lot of talk about what is being arranged and will be done in the future, objectively there is little, if any, progress to be recorded, except perhaps in the very diminutive department of the rare metals. Let our traders honestly face what America has done, and then say if they are satisfied with the leading which is being given to the mineral industry under the British flag.

THE FAR EASTERN REVIEW

COMMERCE :-: ENGINEERING :-: FINANCE

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"THE WHITE PERIL"

A Japanese Military Writer Urges Japan to Prepare to Fight the World.

THE BOGEY OF ISOLATION RAISED TO JUSTIFY THE APOTHEOSIS OF MILITARISM.

We publish below the first instalment of a translation, or rather paraphrase, of a remarkable book published in Tokyo in November, 1915. The book is entitled "The Japanese Empire after the War," and the writer, who hides his identity behind initials, is obviously a Japanese military officer on the reserve list. The object of the writer is frankly militaristic. He seeks to inspire the Japanese people with the belief that the Empire is in danger of being conquered by the white races, after they have patched up their own differences. To avert this disaster, he declares, augmentation of the army is imperative. To make his case good the writer gives with refreshing frankness his opinion of the European nations and America. As an indication of the strength of the hold that militarism has obtained in Japan the book is well worth studying, and we have no doubt that the instalment now printed, and those that will follow, will be read with interest.

PREFACE

Over a year has passed since the outbreak of the European war. Germany, it is believed, is in the grip of an economic famine, and is growing more and more frantic in her mad exertions; there is something demoniacal in her dash at the eastern and western fronts. On the other hand, we see the Entente Powers, Great Britain, France and Russia, growing firmer; their determination to continue the war, no matter for how long, till they gain the victory, is becoming more and more inflexible.

A century ago, when Napoleon threatened to overpower Europe, William Pitt of Great Britain was determined to crush him, at all cost. In defiance of public opinion he kept up the war for twenty years, and finally achieved a glorious victory on the memorable field of Waterloo.

We believe that the Allies will be able to persevere through pains and difficulties, till they win the final triumph. But to-day there is something potential in the influence of public opinion over the policy of the state, which was hardly dreamed of a century ago. Consequently it may happen that the belligerents on both sides will be induced to consider their burdens too heavy, and, overcome by the horror of warfare, arrive at the conclusion that nothing is to be gained commensurate with the enormous expenditure, with the possible result that the restoration of peace may be effected at an earlier date than we expect. But, even if such an unexpected eventuality does not occur, it is certain that the war must come to an end sooner or later. When the war ends, it does not require any prophetic vision to foresee that the Powers concerned will find themselves in the most complex international diplomatic relationship that can be imagined. Some one has said, "The unprecendented war will be followed by a great peace of an unprecedented duration."

But the peace to come will not be the kind which is dreamed of by the Christian, that is, the realization of the gospel of universal brotherhood. Rather we fear the advent of a dreadful series of racial wars waged under the pretext of peace for the preservation of different members of the world's family.

Then it is certain that the road which our Empire must take after the war will be very difficult and dangerous. Hence our fears and anxiety. The idea that the end of the war will find the national resources of the combatants well nigh exhausted, and that the peace to come after the war will be the realisation of the doctrines of universal brotherhood, is but the optimism of near-sighted arm-chair theorists who have no right to discuss with us the important scheme of national expansion.

LIEUT.-COL. V. I.

Nov. 1915.

CHAPTER I

INTERNATIONAL RIVALRY

Our opinion of the European war, as expressed at its beginning, was that it was a great collision between Pan-Germanism and Pan-Slavism. At first we doubted if the two combinations were likely to remain intact, but the progress of the war has convinced us that they are far stronger in their union than we thought. Take for instance the conduct of Socialists.

1.—THE ATTITUDE OF SOCIALIST PARTIES IN VARIOUS STATES

The Socialist is an absolute pacifist; he would destroy the barrier of national frontiers, remove the differences between the rich and the poor, and upholding the principles of universal brotherhood and of common property, is a relentless enemy of war. He holds that warlike action or preparation is calculated only to enrich capitalists and deprive labourers of their work, and to beget many other social evils. To the present war all Socialists were vehemently opposed at first. Their journalistic organs published anti-war views. Not content with this, they

held a meeting in the capital of Belgium on July 29, 1914, at which eleven countries were represented. On this memorable occasion they were unanimous in opposing hostilities, and in declaring that they should do everything to avert the coming world's war. They also agreed to hold a great international Socialist conference in Paris on August 9.

But what did they do after the war actually broke out? Their anti-war fever immediately disappeared and there was not a vestige of the "general strike" they had threatened to carry out. Not one of them expressed any antagonism to the war budget of his own country.

The Attitude of German Socialists.

The Kaiser once said of the Socialists, that "they are people without a country." But, after the outbreak of the war, the German Socialists declared that those who loved their fatherland best in a time of national emergency were the Socialists, and they gave enormous support to the special war estimates presented in the Reichstag in August and December.

Franke, a Socialist leader, when about to expire from a bullet wound at Mullhauzen, said, "I have no other idea now than to fight with the enemy."

In the session of the Reichstag opened in May, 1915, two eminent Socialist members delivered speeches, asserting there was no cause to suspect that their declaration made at the outset of the war as regards their attitude towards it, had in any way changed.

The Attitude of French Socialists.

A French Socialist leader was assassinated at Paris on July 31, 1914, but his colleagues were unanimous in approving of the war estimates on August 4. In the reconstruction of the Cabinet that followed, two Socialists obtained portfolios. One of them was the man who had often publicly denounced any idea of retaliative war with Germany, and the other had been a denouncer of the Russo-French Alliance. But now they had joined the anti-German ministry, breathing fire against the enemy. This is a remarkable phenomenon. Again, a member of the French Socialist party went so far as to assert that the war should be kept up till German militarism was crushed. All the French Socialists have been converted into enthusiastic advocates of the war.

In the Chamber's session of January this year (1915), all the members of the Socialist Party, gave their full approval to the Government's military plans against Germany.

The Attitude of Belgian Socialists

The leader of the Belgian Socialist Party, cried at the top of his voice that Belgium should arise in defence of her neutrality, and that to thwart the advance of German militarists was the only way to ensure her liberty. In the war Cabinet subsequently formed this Socialist was included.

The Attitude of English Socialists

They tried at first to hold fast to their theories, but their voice has since become inaudible. Now they are responding loyally to the Government's call for soldiers and war funds.

The Attitude of Russian Socialists

On the whole, the Russian Socialists seem to have stuck to their guns most faithfully. But to the war budget they consented. It is true that they rejected the call for the 2,000 million roubles loan made in October(?) But those who were supposed to be worse than Socialists, namely, Revolutionists and Nihilists, exhibited a vehemently warlike spirit. They enthusiastically approved of the war against Germany, they exclaimed that Germany was the enemy of Russian labourers, and those who were working abroad, including editors of Socialist organs, returned home to fight for their country.

There were many other admirable instances of the fact that Russian thinkers of various schools have sacrificed their own principles on the altar of their nation's emergency.

Since the outbreak of the war, we have often heard of German Socialists making zealous efforts in favour of peace. But we know they are in most cases only an attempt to throw dust in the eyes of the Kaiser's adversaries. In other cases their alleged remarks were either officially contradicted, or indignantly repudiated by the Kaiser.

Some people think that this laxity of Socialism is only a temporary phenomenon, but that the time will come when Socialism will have its way in war as well as in peace. In proof of this assertion, they point to the strikes in English coal-mines, and the disaffection among the employees of Krupps. But such incidents reflect the views of only sections of the many large organisations of Socialists, and when contrasted with the spirit of patriotic nationalism exhibited by their representative bodies, as already stated, are too insignificant to negative the general attitude of the Socialists towards the war. This section of the chapter is intended only to show how a section of the people cherishing Socialistic principles, have, in the ardour of their patriotism, sacrificed their own private views, and it perchance proves how strong and firm becomes the spirit of nationalism in time of emergency.

2. Unity and Co-operation of Various People

It is a matter of course that the subjects of any nation should join with one another in doing their utmost in their country's cause in a serious national crisis, and yet we cannot but be deeply impressed by the wonderful spirit of unity and co-operation shown in countries in which so many different races are mingled.

Most of the facts illustrative of this national co-operation in various countries have already been reported through the Press magazines. But we will recapitulate some typical facts in a systematic form.

Germany. Germany is inherently a warlike nation. Besides, her soil is sterile, her climate is cold, and she is beset with enemies on three sides. Unless she strives and fights with all her might and main, she can never hope to make any progress. For many decades she has been expecting and preparing for the outbreak of the present war, and now that it has come, all her people are resolutely conscious of its critical life and death significance; they know that Germany must either win or be ruined. So there is something in the German spirit to-day which is hardly equalled elsewhere.

Even the English observer cannot withhold admiration for Germany's military organisation. (The opinion of an English writer is here quoted concerning what Germany has done in industrial, financial as well as in military organisation).

Directly the war broke out Germany took over the monopoly of all cereals, and the local administrative bodies are allowed only to sell sufficient quantities of them to meet the requirements of their respective populations.

All things and materials of the slightest military value have been requisitioned, even to cotton and silk yarns. All the court festivities and banquets were abolished, the amount they would have cost being contributed to homes for disabled soldiers.

Young men between 16 and 18 receive military training under the discipline of retired officers, and men over 17 years can volunteer for the service without the consent of their parents.

The strictest restriction is exercised on travel and communication of people to exclude the danger of espionage.

Relatives of deceased soldiers are not allowed to wear mourning or to advertise their bereavements in the press.

War prisoners are employed in the reclamation of waste land, they are employed in ploughing some parts of parade grounds, parks, gymnasiums, etc., to increase the agricultural output.

The method of breeding cattle and other animals has been altered so as to diminish the consumption of their food.

Representatives of business men have met and sworn that they will not shrink from making any sacrifice needed so that their country may attain the object of the war. Industrial workers and agriculturalists have made the same patriotic pledge, that is to make any personal sacrifice necessary, and to do everything to prevent the prices of things unduly appreciating.

On August 13, last year (1914), the number of German volunteers reached, 1,300,000. (?)

Women have petitioned the authorities proposing that a women's national defence corps be organised to do home duties so that as many soldiers may be sent to the front as possible.

The greatest economy is exercised in every German home, even the refuse of food-stuff, if it is deemed eatable, is set aside for the indigent, while that part which is fit for the food of animals is also carefully stored for feeding cattle and other beasts.

For the benefit of families of soldiers, more than 100 cheap restaurants have been established by aristocrats and Socialists, and there meals are sold for between 12 and 18 *sen*. (Japanese cents.)

All public entertainments are restricted to those which inspire patriotic sentiments.

Various charity enterprises and subscription funds have been got up and liberally responded to.

Scholars are using their talents in defending their country's cause, in exciting the sympathy of other nations, and inspiring the people with martial spirit by books or lectures.

University professors are urging their students to volunteer for service, and some colleges have been closed owing to all the students going to the front. At the primary school, the teacher endeavours to give the students the latest information about the operations so as to keep up their interest in the war. Every class room has a map of the war and pictures of famous soldiers are hung up to excite admiration and adulation on the part of the students.

Scientists are taking the greatest pains to discover substitutes for the necessaries of life and war, the demand for which has increased out of all proportion to the natural supply. They are said to have succeeded in discovering many useful substitutes. (Many examples are mentioned.)

France. In France, Britain and Russia, the national enthusiasm displayed is no less keen than in Germany. Countless acts of patriotism, both public and private, have been recorded.

Particularly is this true in the case of France. The spirit of vengeance against Germany has been burning during the past forty years. Though there was some internal strife in the Chambers, the Government's bills were passed both in the sessions of August last and January this year. That the French people, who had a notorious reputation for flippancy, should now place implicit confidence in the conduct of the military authorities, and that not a sound of grumbling has been heard though the soldiers had led over a year's trench-life without making any marked advance, strikes us as a remarkable fact.

The Times correspondent at Paris wrote something as follows:—

> "Men from 19 to 48 have nearly all enlisted in the service, all work at home being done by women and old men. All motor omnibuses have been requisitioned and the traffic is covered by the old fashioned horse bus driven by old men or juveniles. Newspapers are sold only by women and children. Wealthy people and actors are doing charity work, and the distribution of food among poor families of soldiers is chiefly done by high-class ladies. Many cafes and restaurants are closed and Paris at night is unbelievably quiet."

The traditional frivolity of the French character has gone and is replaced by earnestness and steadiness of purpose. In the conversation of adults and the play of children you find the spirit of French patriotism.

Russia.—Russian patriotism was doubtless at a high pitch during the Russo-Japanese war, but the students were then more enthusiastic about social reforms, and towards the close of the war a revolutionary movement actually broke out which seriously interfered with the conduct of the war. In the present conflict, however, the Russian people are concentrating their whole energy on the war, free from all internal troubles. The Press in a chorus has declared that the German oppression of the Slav race has reached the last extreme, so that Germany, the enemy of humanity, must be exterminated in the interest of the world's peace, and that the Government and people, parties, Jews and Poles should combine in destroying their common enemy.

The name of the capital has been changed to signalize Russian animosity against the Teutons.

The veto on alcoholic drinks, which was suggested during the wars with Japan and Turkey, but not carried out, has now been put into operation. This prohibition causes the Government the loss of 670,000,000 *yen*, and those who were making their living by the liquor business numbered 200,000 not including 4,823,000 retailers. But, after the veto was enforced, the number of crimes and fires is reported to have greatly decreased, while the savings of the people increased.

All the famous palaces have been placed at the service of the Red Cross Society by their royal owners, to be used for the accommodation of the wounded. Throughout Russia so-called "provincial union associations" are organised under the control of Prince Ruoff (?) and these associations contributed 64,000 beds and necessary medical requisites. They are also constructing 50 sanitary trains. Some Government subsidy is allowed them, but more of their work is being paid for by the voluntary contributions of their members.

Scholars and students are doing their duty as readily as others. Twenty-five per cent of the students of the Peers' school at Moscow have volunteered for the front. Many students offered their services for carrying wounded soldiers and other work. At technical schools students are turning out or mending weapons or making chemicals for war uses. Many boys and girls also offered their services for war duties, some of them being decorated for gallant and meritorious services.

Our Lieutenant commander Edahara who has been with the Russian troops attests that the loyalty of the Russian people towards the Czar, being imbued as it is by religious sentiments, is perhaps more fervent than Japanese loyalty towards the Mikado.

Britain. Previous to the war, the situation in Ireland was assuming an ominous aspect. Bloody scenes had already occurred in Dublin, and there was a widespread fear of a civil war breaking out. All the papers of the Liberal and Socialist parties advocated neutrality and expressed anti-war views. But, once hostilities were declared, all the internal hubbub and journalistic fulminations vanished, and the whole Empire began to move towards the same objective of war. The Prime Minister fraternized with the leader of the opposition, and both appealed to the patriotism of the people from the same platform.

As regards the people in general, they reposed full confidence in the invincibility of their unrivalled Navy, and turning a deaf ear to foreigners' criticism of their army they are making deliberate preparations for a perpetual war, never flagging in their confidence of ultimate victory.

Within a month of the outbreak of the war, over 700 men connected with universities had gone to the front as volunteers. All public schools are giving military drill to the students and the inculcation of military knowledge is aimed at by every school. Juvenile battalions are being formed and boy scout movements are receiving warm support. General Baden-Powell is said to have prepared a scheme for creating a national defence battalion from the juvenile volunteers.

Women are taking the place of men workers in many branches of public work. As chauffers, railway porters, booking clerks, station masters, post deliveries, workers at factories, car drivers, and policemen the English women are working admirably.

Sir Gilbert Parker declares—"To destroy a perfectly organised state like Germany, nothing but the mobilization of every British resource in man and material will be effectual."

3.—Nationalism and World Politics.

Nationalism.—By nationalism we mean that attitude of a people, who possessing the same characteristics, language, customs, etc., realize their own collective interests and endeavour with mutual co-operation to share their common political destiny for better or worse. This doctrine holds that the people of one

country may differ from those of another in their political aspirations.

There have been many tyrannical rulers from the olden time who broke or tried to destroy the natural boundaries between people of different race and tradition, with the consequence that some very unnatural national combinations have been made. One of the greatest illusions which animated these tyrants was what may be called world subjugation.

After the collapse of Napoleon, it was suggested that a general re-adjustment of the confused boundaries of the European states should be effected upon the principles of nationalism. But this plan was not adopted, so that Europe relapsed into the chaotic state that preceded the French revolution. Thus it was that all the European embroglios which have since occurred are traceable to nationalism. The independence of Greece, Belgium and Italy and the building up of the German Empire were the results of the collective endeavours of people of the same races, customs, and languages to break through the yoke of alien rulers.

The fact that great Russia was vanquished by small Japan gave a strong impetus to the nationalistic instincts of many people. Revolutions have broken out in Turkey and China, and the Balkan states have seen outbreak after outbreak of a bloody nature. And yet the division of people does not as yet coincide with the division of nations. In various parts of the world, therefore, we see a dormant tendency to nationalistic revolutions. They are like the fire in the volcano, biding their time of eruption.

World Politics.—Napoleon was a worshipper of the world subjugation policy. With his strong nationalistic patriotism, tainted by his no less strong prejudice and superficiality, he endeavoured to accomplish his ambition. The *weld politik* of the Kaiser is a close approach to Napoleon's dream.

This scheme of subjugating the world, however it may seem, cannot be declared impossible of attainment if there appeared an extraordinary military genius endowed with unlimited power. Even in olden times, when communication organs were in the most imperfect condition, such men as Kublai Khan and Alexander the Great accomplished at least part of their world subjugation policy, so we cannot but think that the wonderful progress that has been made and is being made in all facilities of communication, is adding to the possibility of the conquest of the world.

4. The Combination of the White Races

If the realisation of the *weld politik* is extremely difficult, we must admit that it is possible that nations possessing the same or kindred languages and interests, customs, and belonging to the same or similar races, should combine in protecting their common or mutual interests against some nation or nations of different racial origin.

The German Emperor once proclaimed the "yellow peril," and Kuropatkin went further by asserting that all the nations of Europe should unite their forces to remove this peril to the peace of the earth, and that the Russo-Japanese war was only a prelude to a gigantic encounter between the white and yellow races.

We cannot altogether deny the possibility of the recrudescence of some such opinion among the white people. When they have experienced enough of the horrors of the present war, they will then see plainly the stupidity of fighting among themselves, and set about removing the cause of further trouble among themselves. As a first step towards this end they will devote their united efforts to bringing pressure upon the nations of other different races. They have already brought pressure to bear on different races. The historic crusade was a typical illustration.

The demands which Japan recently made on China while the European war was at its height seemed to have created a disagreeable impression abroad to the effect that it was a glaring instance of Japan's Imperialism. Above all, it must be remembered that China, which ever constitutes the spring of Asiatic catastrophes, is looking on Japan with a jealous eye and is trying to use white people as a tool to persecute Japan, quite forgetting that she is thereby unconsciously inviting her own ruin.

We need refer only to the conditions which may eventuate after the war. As we turn our thoughts to the anti-Japanese movements in America, the British movements in the South Seas, the Russian expansion in Manchuria and Mongolia, we cannot forbear entertaining the deepest solicitude in regard to the future of our country.

Frobenew's Opinion.—A few months before the outbreak of the war, a German Lieutenant Colonel, Frobenew by name, published a pamphlet entitled "German Empire's Crisis." Though it is a small brochure of less than 100 pages, it sets forth the possibility of conflict of interests between the Entente and Central Powers, prophesies the outbreak of a gigantic war, and, finally anticipating the rise of the Asiatic race, advocates that the whole of Europe should rise to protect itself against Asia. It is plain from this that the idea of the "yellow peril" has not as yet disappeared from the German brain. Following is the general purport of the pamphlet.

"*The World Conflict between Europeans and Asiatics.*"—"After the fall of the Roman Empire, various European nations of German and Roman blood had become leaders of the world's civilisation, and had been able to open to the world's civilization many uncivilized countries of exclusive policy, and at the same time plant their own political and spiritual influences in many foreign lands. But the history of national progress shows that a nation with enough spirit and energy often succeeds in adopting all the trophies of civilisation possessed by other superior nations, and finally in freeing herself from the leadership of those superior nations. The nations of Europe are in danger of being deprived of their place of command and of being driven back into the narrow regions they inherited from their ancestors. Unless the European nations combine to protect themselves against this danger, they will be getting closer and closer to disaster. We saw the germ of this peril in the Russo-Japanese war. We must expect to see some day a world conflict among the Europeans, Americans and Asiatics on the Pacific where Russia had been vanquished. The Kaiser said 'European nations should beware lest they should lose their own sacred soil.' His warning has a deep significance."

European combination against the yellow race.—"Every one will recognise the necessity of this combination. The different peoples of Europe should maintain friendly relations and restrain their respective ambitions relating to colonisation, acquisition of rights and territory, etc., in their mutual dealings, in case they should be threatened by their common enemy. It is scarcely conceivable that the nations of Europe should wrangle among themselves so much as to endanger their own life as a whole. But the international situation shows that the six Powers are keeping up their hostile attitude against one another, inflicting upon themselves the interminable rivalry of armaments. If once a war should break out between two nations, that would at once magnify itself into a huge world war, in which case it would be impossible for many years to come for Europe to resist the encroaching influence of that race from which we are already beginning to suffer......."

This kind of argument is typical of the propaganda which Germany will surely make, not only in Germany but among the whole white nations, after the war. When they really realize the folly of fighting among themselves, who knows but what this prophecy may be credited? If you read the following view of the "Round Table" you will find that such a thought is not exclusively German.

The "Round Table's" opinion.—When the problem of the United States of Europe was discussed in various European countries, it was maintained in England that the proposal was the best way of assuring peace and that it was not impossible of realization. The "Round Table" discussed the question somewhat as follows:—

"The pressure which the Powers bring to bear on the small inferior states always evokes indignation and resentment which gives rise to many complicated diplomatic problems.

"So it is necessary to protect these small inferior races, and enable them to retain their language and religion, and thus advance their respective civilizations and enjoy their rights.

"The common interests of the various states of Europe should be secured by their combination.

"And the object of their combination is to protect themselves against the aggression of their common enemy from the East and elsewhere outside Europe, and at the same time prevent the avarice and ambition of some Power asserting itself too much to the menace of other European nations.

"The first step towards this object is to limit the armaments of the nations to the minimum, and cut down the enormous expenses on war preparations which are driving many a nation to bankruptcy."

5. Recuperation from the Effects of the War is Comparatively Easy

Many people say—"The losses which the belligerent nations are suffering from the present war will be so enormous that it will be extremely difficult for them completely to recover from their effects. From now on till the time when they shall have fully recuperated their strength, Japan can enjoy sound sleep in undisturbed security, and why should we have any fear at such a time?" Yes, the losses which the belligerents have suffered and are to suffer both in men and material, are very great, but at the same time, we must remember that their power of recuperation will also be greater than one is apt to think, because most of the war funds have been raised by domestic loans. After the war of 1870 France, it was feared, would have no power of recuperation, partly because of the severe moral blow inflicted, and partly because of the enormous indemnity she had to pay to Germany. But in 1875 France had already healed from the wound of the war, and was seriously meditating a war of reprisal on Germany. Russia's defeat in the Russo-Japanese war inflicted a heavy blow on her resources, but within ten years she had quite recovered from the wound, and is now actually fighting with the greatest military organisation ever known. As for Germany, she fought with Denmark in 1864, two years later was fighting with Austria, and in 1870 took France to task, and has ever since been making rapid strides in her national progress.

The moral and material losses which the present war will inflict upon the combatants will doubtless be greater than those of any war ever fought, but this is not sufficient reason to justify the conclusion that the process of recuperation will be slow and tardy.

It will not be uninteresting to examine the probable power of Germany's recuperation by studying her financial and economic resources, seeing that she is generally supposed to be suffering from the severest economic impoverishment.

Germany's Power of Recuperation.—(In this section of Chapter I, the author presents many figures and calculations which tend to support his argument, that is, that Germany will not be so badly off financially and economically after the war as she is expected to be by her enemies.)

6. Pacific Oppression

Let us suppose for argument's sake, that there will be no fear of armed aggression against us during the period between the close of this war and the recuperation of the Powers, however short that period is. Even if this be so, we can still see as clearly as we see light, that the persecution we are destined to receive at their hands will grow more and more severe, because of our isolated position in diplomacy and trade as well as in race. It is not quite true to say that the peril is coming after the war, for at this very moment we can already hear its flutterings at the door. When the white combatants shall have wearied of the war, when they shall have realized the stupendous folly of waging war among themselves, that is, when they shall have come to sit at the peace conference, then is the time that their erstwhile animosity directed against one another will be turned into a new and different channel.

CHAPTER II

Russia's Eastern Policy

It is hardly necessary to state here that since her defeat in the Russo-Japanese war, Russia had been busy preparing for a retaliative war against us (Japan). But now that the friendly relations of the two countries are growing apace, we do not like to recur to such a subject.

Still, though Russia is grappling with her formidable enemy with her utmost power and determination, she has not in the least abandoned her long-cherished scheme in the East.

The Amur Railway.—The construction of the Amur railway was decided upon in the year after the Portsmouth Treaty was signed. The work was started in 1908. In explaining the reconstruction of this railway in the Duma, the Premier, M. Stolypin, declared that Russia was a gigantic eagle with two heads, the one facing Europe and the other Asia, and that it was impossible for her to become a one-headed eagle. Lieutenant-General Boliwanoff corroborated the Premier's statement, saying that it was necessary for Russia to defend her frontiers, not only in an economic, but also in a strategic sense, and that in time of need the interior States should have the means to send their troops to the frontiers.

The building of the Amur railway was, therefore, completed in the spring of 1915, a year ahead of the programme. It covers a distance of about 2,000 Russian miles, and cost 234,170,000 *yen*, the time spent in construction being seven years. In May of 1915 the proposal to build a branch line of the Amur railway between Khabarovsk and Nikolsk was submitted to the Duma.

Russia's Administration in Mongolia.—While Japan was carrying on interminable negotiations with China, Russia had signed a treaty with China concerning Outer Mongolia. Thus by June, 1915, she had enabled Mongolia to obtain self-administration and at the same time had secured for herself an actual protectorate over Outer Mongolia. A perusal of the Sino-Russian treaty on Outer Mongolia will show the admirable tact with which Russia secured the actual right over Mongolia without hurting China's national pride.

In September, 1915, when the Russian arms at the eastern front were in the most desperate condition, her second line of defence being broken, and the Czar fighting at the front himself, the Russian Government made a new demand to China concerning the Ajitai district. The demand was a repetition of the proposal made last year as a counterpoise to the evacuation of the Russian troops from the same district. Its aim was to secure special rights, similar to those obtained in Outer Mongolia, in the district lying between Kapula, of Outer Mongolia, and Seciharatisk, of the Russian territory.

Russia's Attitude towards the Sino-Japanese Negotiations.—When the commencement of the Sino-Japanese negotiations was reported, most of Russia's influential journals showed an anti-Japanese tendency. They generally argued, especially the *Rach*, the *Biljevimedmosch* and the *Dayni*, that Japan was taking advantage of the European war in executing her imperial and continental policy, and that it was not to the best and lasting interest of Japan to take too much advantage of the absence of the Powers in the East, etc.

Nothing is further from our intention than to sound the alarm bell alleging that the Russian press is unanimously anti-Japanese and thereby dampen the improving friendship between the two countries, but we should not forget that behind the facade of our friendship there is still running such a dark current. Considering that the two peoples are of a radically different race and that the one country had for nearly ten years been swearing a war of vengeance on the other, it is both superficial and dangerous to imagine that international enmity of such a nature could vanish into air at a moment's notice.

If we have once resolved on a fundamental state policy we must be determined to carry it into effect even if we are compelled to make the rest of the world our enemy. As for the war funds that may be required for the execution of such policy, we believe it is the duty of our people to come forward gladly to meet them.

The Russo-Japanese Alliance and Our Armaments.—Mr. Denisoff, a member of the lower house of the Duma, after making a tour in the Far East in 1913, published a book called "Russia in the Far East," in which he argued on the folly of Japan and Russia quarrelling in the Far East and warmly advocated a Russo-Japanese Alliance.

After the outbreak of the European war, Russian confidence in our fidelity has remarkably increased, and this led to our supplying her with military accoutrements and munitions of war, and also to the dispatch of our Red Cross nurses to Russia.

And now Russia has no fear about her eastern frontiers. On the contrary she is enabled to concentrate all her attention on Western Europe. Thus it is that all the enmity which has hitherto been smouldering in the Russian bosom, as well as Kuropatkin's "yellow peril bogey," have been almost dispelled, and even the advisability of a Russo-Japanese Alliance is now discussed among certain sections of Russian politicians.

The Russo-Japanese Entente.—On the opening day of the Duma in August, 1915, M. Sosonoff, the Foreign Minister, declared that the Japanese press had been of late earnestly urging the advisability of a Russo-Japanese Alliance, that this sentiment was cordially reciprocated in Russia, and that the *de facto* alliance relations now existing between the two nations should prove a preface to the formation of a still closer alliance in future. His speech evoked great applause. The *Ruskoeslovo* commenting on M. Sasonoff's remark, wrote as follows:—

> If the two countries have found a community of interests geographically, there is no need to wait till the end of the war for the consummation of the alliance; that alliance which withstands the test of blood and iron is really the bond which shall guarantee the two nation's friendship forever. In view of the great effects which the war is exercising both on Russia and Japan, it is also essential that Japan should do everything in her power to bring the war to the earliest termination possible.

As this paper says, since *de facto* alliance relations exist between Russia and Japan, and both are fighting against the common enemy, there is no reason why they should not sign a document and consummate the alliance with the seal of a treaty. We doubt not that the triple alliance of Britain, Russia and Japan—which countries have great interests in the Orient—will constitute an efficient instrument for the solution of various Oriental problems which may arise in future.

The Timeliness of the Alliance.—Some people say that the desire to form a Russo-Japanese alliance at the earliest date possible is keen in Russia, whereas Japan has no need to accelerate such an alliance. But we are of the opinion that it will be absolutely impossible to see a more remarkable manifestation of Russo-Japanese friendship than that which we witness at present. This warm feeling, on both sides, may cool down after the war. If the two nations have any desire to perpetuate the friendly relations now obtaining, they will find no more favourable opportunity than the present day. Good chances seldom come, and we hope that the alliance will be signed at least before the present war ends.

National Influence Should be Backed by Military Power.—Some people are advocating an alliance with Russia as a means to solve our armaments problem. But alliances and ententes will be found of little value in time of international trouble. Even if the alliance be effected on terms advantageous to us, there ought to be no connection between this and our national defence problem. To connect the two would be a serious error. Just consider Russia's national ambition to secure a good sea outlet. It is a question whether she will obtain harbours in the Mediterranean and thus satisfy her long cherished desire.

On March 30, 1915, the representatives of the Russian aristocracy, holding a general conference at Petrograd, made the declaration that they believed that Constantinople and the Bosphorus and the Dardanelles should be ceded to Russia. But in the beginning of the attack by the allies on Turkey, Sir Edward Grey hinted that Britain should obtain Gallipoli and France the opposite shore, while the Dardanelles should be neutralized. The attack on the Dardanelles may be regarded as Britain's diplomatic thrust against Russia, and that being so we can understand why Britain transferred her troops from the principal theatre to employ them on this side-issue.

What is the actual power of Russia among the Allies? Is there any hope for her obtaining any influence in the Mediterranean? Supposing that owing to the favourable vicissitudes of the campaign, Russia should succeed in obtaining influence in the Mediterranean, she would by no means be content with that. Once her national resources are amplified she will invariably begin to think of the outlet for her Siberian Railway. She would not be content with the position of a single-headed eagle. But where she wishes to thrust up her Oriental head, there Japan is trying to extend her influence, to wit, in Manchuria and Eastern Mongolia. Once our power is relaxed, Russia's influence will burst out like an irresistible torrent.

We by no means subscribe to the opinion held in some quarters to the effect that after the present war, Russia and Germany will shake hands to wreak vengeance upon Japan. *But we assert that in order to maintain friendly relations with Russia and to share with her the rights and interests in amicable harmony we must rely upon our great and powerful military force.* An alliance cannot affect in any way the fundamental principles of our military preparedness. The best policy for Japan would be to place Russo-Japanese relations on a firm, friendly basis, taking advantage of our present improving friendship on the one hand, and on the other endeavour by adroit diplomacy to let Russia obtain some influence, in the Near East or in the Mediterranean, so as to mollify her ambition in the Far East.

We do not know what splendid plan is being evolved in the brains of the central authorities, but we hope that the compensation that Japan should demand from Russia for the assistance we are giving her now, will be this, that Russia shall give every possible security to guarantee the peace of the Far East.

CHAPTER III

The American Imperialism

American Expansion.—The history of the United States is the history of an absolutely expansive nation. The Republic was founded in the latter part of the 18th century and subsequently bought Indiana from France, absorbed the British Oregon, deprived Mexico of Texas, and California, and bought Alaska from Russia. Her Monroe doctrine has gradually been changing its hue until in the 20th century it has transformed itself into a regular imperialism. And this American imperialism has steadily been encroaching upon the Orient. It has taken such shapes as the annexation of Hawaii, the acquisition of the Philippines, and the occupation of Carolina and Guam. In 1899 Mr. Hay, the Secretary of the State, declared the principles of the "open door and equal opportunity" in China; Mr. Roosevelt succeeded in arbitrating peace between Japan and Russia; and, in January of 1914, Mr. Knox proposed the neutralisation of the Manchurian railways. Now the Panama Canal has been completed to give great facilities to the American navy.

All this is the natural and necessary effect of the remarkable advancement which the United States has made and is making, and we entertain no suspicion of ulterior motives on her part, but we must remember that the American expansion has a close connection with the growth of our country's influence.

We do not necessarily share Homer Lea's opinion that a war by military force will eventuate between America and Japan, but do believe that war in a non-military sense, that is, a pacific war of trade, will inevitably occur in the Orient between the two nations. And this pacific warfare will create a result that will be more terrible than a military combat itself.

The Condition of the Anti-Japanese Movements.—Our brethren in the United States are being persecuted with the many recriminatory treatments they receive at the hands of the Americans through the latter's racial prejudice The rejection of the Japanese immigrants, the segregation of Japanese school children, the prohibition of the entry of the Hawaiian immigrants into America, the veto on alien's (Asiatics) land ownership, etc., are clear manifestations of American nationalism and of wilful persecution of alien races.

The obnoxious example of this recriminatory treatment is proving contagious in Hawaii where our brothers have attained a wonderful influence. Of the total Hawaiian population (190,000), the Japanese number no less than 88,000, which includes over 18,000 men who should have qualifications for suffrage. The yearly birth rate of the Japanese in Hawaii is 3,500. Of those engaged in the sugar industry of the island—45,000 in all—the Japanese constitute 60 per cent.

The Administration of the islands, being jealous of the growing influence of the Japanese, took advantage of the ignorance of Japanese labourers in imposing the rule that those infants who are not registered within six months of their births, have no right to become American citizens. This is clearly an exception to the American Constitution which provides that whoever

is born in America can become an American citizen, and is an attempt to deprive the Japanese of their right of voting. A bill has been submitted to the legislature advocating that the expense necessary for controlling the beri-beri disease should be defrayed by the Japanese on the ground that the majority of the patients are Japanese.

A new law has been proposed to impose the restriction on Japanese that those who are not, or cannot become, American citizens shall not undertake any contract works with the Government. This is an attempt to deprive the Japanese of their occupations and to cripple their activities.

The Fishery Bill, liquor retail bill, and other bills disadvantageous to the Japanese are being prepared. Particularly noteworthy is this fact that the proposal to give military training to all men of over 18 years of age at the public expense, has been rejected for the reason that a large number of Japanese men would receive training.

Thus the position of our brothers in Hawaii, which has been built up by many years of arduous toil and perseverance, is now being threatened with great oppression.

In May, 1915, many American Congressmen went to Hawaii, at the invitation of the latter authorities, and they were reported to have been astonished at the sight of so many Japanese. Though we have not heard their opinion on the subject, one or two of them expressed pessimistic views on the grounds of the largeness of the Japanese population.

Since the outbreak of the war, the double nationality problem has evoked much discussion in America. The Japanese immigrants have long been studying this problem, but have not come as yet to any satisfactory conclusion. It will become one of the important international problems in future.

In October, 1915, the Hearst papers in America printed the English translation of the book "The Dream of the America-Japan War," published in Japan, and argued that Japan has the intention to attack the United States. This naturally caused anti-Japanese sentiments to reach a high pitch, with the consequence that Consul Numano, of San Francisco, and Consul Nakamura, of New York, and also Mr. Daniels, the American Secretary for the Navy, published contributions in a San Francisco paper to explain the matter.

Some Pro-Japanese Americans

The American persecution of the Japanese is so extreme that some Americans, moved by a sense of righteousness, are sympathizing with the Japanese, though they are rare exceptions. Mr. Frank Putnam, of the *Post-Dispatch*, St. Louis, who is known as a pro-Japanese writer, has contributed an essay to the *National Magazine* defending the Japanese and attacking the preposterous anti-Japanese movements. Dr. Lowen, of the Washington University, and Mr. White, of the Immigration Bureau, have rendered friendly efforts in obtaining immigrant certificates for two poor Japanese students, Messrs. Anozawa and Ahe, which may be mentioned as an example of America's pro-Japanese conduct.

Our Admiral Dewa, after many interviews with important people in America, is reported to have remarked that the American ill-feeling against the Japanese is restricted to the lower class of labourers, and that the gentleman class of Americans entertain friendly sentiments towards the Japanese. Men like Mr. Wilson and Mr. Bryan are, he said, endeavouring to solve Americo-Japanese problems with good will.

It is also said that the "yellow press," which had been invariably anti-Japanese, has lately changed its tone and that the greatest cause of the Japanese unpopularity in America is to be found in the machinations of Germans, who often send incendiary telegrams from China. We hope with Admiral Dewa that the Americo-Japanese ill-feeling may speedily vanish.

Dr. Gulliver and Dr. Millins have published opinions urging that the provision regarding the race conditions should be expunged from the naturalization law, and that the immigration law should be revised, so as to allow of the free entry into America of all people regardless of race and colour distinction.

In answer to Mr. Masalka's "Japan's Message to America," which the author had distributed among the American notabilities to introduce this country to the United States, Mr. Russel, President of the Japan Society, has published the book entitled "Japan to America." It contains the opinions of about fifty Americans, including Mr. Roosevelt, Mr. Bryan, and Mr. Root, on Americo-Japanese problems. Some of them declare that the anti-Japanese immigrant measures are justifiable, while others hold that the solution of Americo-Japanese problems requires time. Of course none of them object to the pacific relations between the two countries, and occasionally we find those who advocate in positive terms the improvement of Americo-Japanese friendship. Mr. Shuster, former official of the Philippine Administration, is one of the earnest pro-Japanese pacifists. We would be grateful if the Americans would listen to the views of a man like Mr. Shuster.

(A Japanese translation of Mr. Shuster's opinion is used by the author. Mr. Shuster is represented as saying that Japan is inferior to no civilized nation in international morality, as shown by the treatment accorded the German prisoners; that there will be no serious quarrel between Japan and America; that the political activities of the two nations are well defined by the interposition of the Pacific Ocean; that America has no intention to govern the Philippines for ever against the will of the Filipinos, and that these islands shall be neutralized by the joint guarantee of America and Japan, etc.)

But views such as the above are held by a very small minority and will never be listened to by Americans in general.

The fever of military preparedness.—The recrudescence of the fever of military preparedness is now moving American public opinion. There will be something terrible in the expansion which the United States will effect both in military and economic resources by spending her vastly increased wealth obtained through the present war.

Mr. Wilson, Mr. Roosevelt, and Mr. Root are among the earnest militarists. The essay which Mr. Roosevelt contributed to the *Outlook* in September, 1914, on "The effects of the world's war and its lessons," should also prove very instructive to Japanese antagonists of military provisions.

(Over three pages are devoted to the translation of Mr. Roosevelt's article. The following sentence is strongly emphasized—"The only way to ensure our safety in a national crisis is to defend ourselves with trained efficiency and valour.")

Recently American statesmen have keenly perceived the necessity of adequate military preparedness, for the several protests America sent to Britain and Germany concerning their unwarrantable acts, brought no conspicuous results because of the lack of military power behind America's diplomacy. So it is that Mr. Roosevelt's argument concerning American indifference is somewhat exaggerated.

On August 25, 1915, Mr. Roosevelt, addressing the Plattsburg Volunteer training camp, declared as follows:

> "What the United States wants is a first class navy and a fully trained army. If conscription is to be adopted, we want a standing army of from 250,000 to 500,000 soldiers. A single army corps from Germany or Japan could at any time be ferried across the ocean and take New York or San Francisco and destroy them. A professional navy and a professional army are not enough. The citizens should be able to do their own fighting. Professional pacificists are trying to Chinafy America. A high-class Japanese officer has said to me China is asleep and America is going to sleep, so that the one that is to become mistress of the Pacific is Japan. If the United States listens to pacificists and is Chinafied his words will come true. Diplomacy of high-sounding words without the backbone of deeds argues a cowardly national spirit."

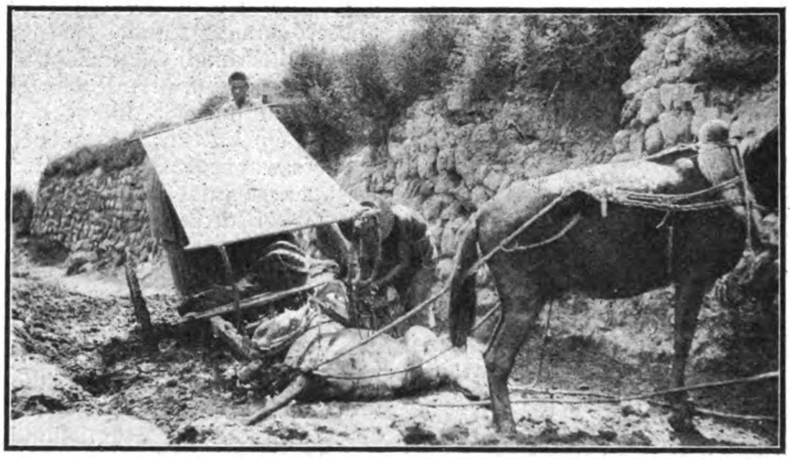
The American Government is reported to be considering the scheme of increasing the strength of her army to 150,000 in three years and of building 12 battleships, 22 cruisers, 128 destroyers, and 62 submarines. Again we hear of the American plan of building within five years 20 battleships, 70 destroyers, 100 submarines, and also the proposal of having the reserve strength of 400,000 men, appropriating 250,000,000 *yen* in the Budget for next year.

At any rate the European war is giving a strong impetus to the American Statesmen who are now quite convinced that there is a close connection between adequate armed preparedness and the continued existence of a state.

A Road in Northern Chili—Carts on Their Way from Inner Mongolia to Kalgan

THE BAD ROADS OF CHINA

A Chinese road might be defined as the line of least resistance between two places. It is not always the shortest line, and it is seldom the easiest. It would usually be easier to ride or drive through the adjacent fields, ploughed or unploughed, wet or dry. But in the fields the traveller has the irate farmer to deal with, and sometimes whole armies of watchful peasants banded together to fight the stream of traffic when it encroaches on their land, while on the road one is free to make the best or worst of it, to smother in dust, wreck his equipage on the rocks, sink, flounder or swim, according to the nature of the soil and the season. The road is a strip of ground which no one farms, or a pair of ruts in the desert, or an overflow ditch for neighboring irrigation ditches, no more no less.



A Road in Chili—A Common Accident

The building of roads is not a public work in China. Roads are worn, not built. Just as rivers find a course, guided by the law of gravity, so commerce opens a road guided by the law of overproduction and demand. The great highways in China are older than the oldest records. In the age of great military conquests, roads were occasionally repaired by the armies which were to follow them, and in the South there cropped up at rare intervals an altruistic official who put down slabs of stone on the muddy footpaths which wind a tortuous way from city to city through the labyrinthine paddy fields. But when a stone sinks into the muck, or is utilised to mark a farm boundary, there is no one whose duty it is to replace it, and no one would think of complaining about it till he found himself up to his waist in mire on a dark night. The only incentive to the neighboring farmers is the fear of encroachment on their land, and the only thing that will move an official to an appropriation is the miring of an irritable and influential potentate on a road that is under his jurisdiction. That which is once done is done for all time. When a prefecture raises money to improve a road, nothing is put aside for its upkeep. Bridges are built for eternity, and when a cart and four mules finally fall through a bridge, a new eternity begins during which commerce uses the nearest ford or a ferry, until after decades or generations, some person of

A Road in Yunnan

A Road in Northern Chili, Passable only by Pack Animals

A Road in Honan

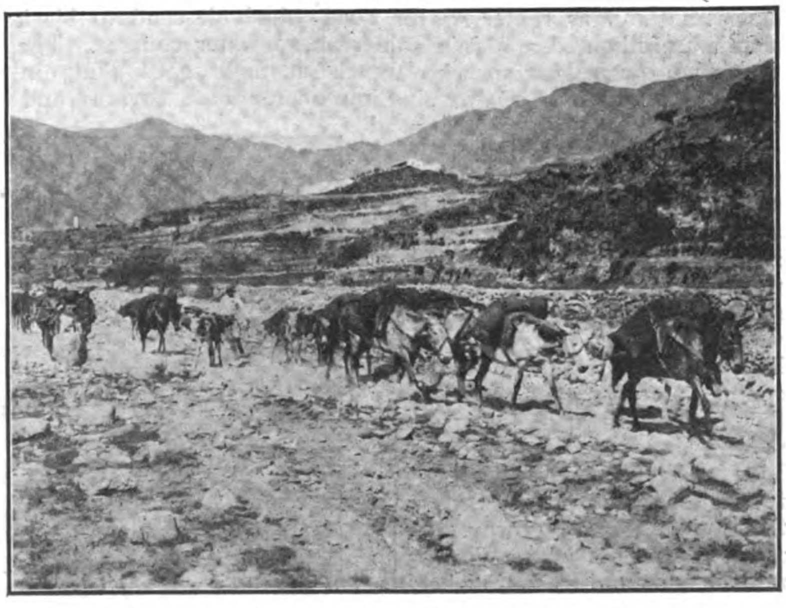
unique enterprise starts a public subscription and finally builds a new bridge, at which time a third eternity is entered upon.

Traffic is considerate of a husbandman, and a road continues to be a highway as long as four horses can drag a cart over it or a horse can keep his nose above the slime. When it is impossible, according to Chinese standards, which are very liberal indeed, then the adjacent field becomes the road. Stimulated by the loss of a belt of arable land from ten to twenty feet wide, the farmers swarm out into the old highway and do what they can to make it passable. This does not mean that they do much; but the little they do inflates them with righteous satisfaction and thereafter for some weeks they levy toll upon all who pass. Sitting by the way, they smoke their long pipes, gossip and philosophize until they are warned by the jingle of bells or the rumble of wheels that a traveller is coming. Then they leap up at once and become frantically busy public benefactors, rolling stones hither and thither, throwing mud to the four winds, and shouting directions with the full strength of their lungs. When the traveller comes along they straighten up reluctantly, wipe the honest sweat from their brows, and suggest that the stranger contribute a little something to the upkeep of a set of benevolent fellows who are neglecting their crops and families for the public weal.

Road on the Tai-yuan-fu Plain, Shansi—Showing Avenue of Monuments

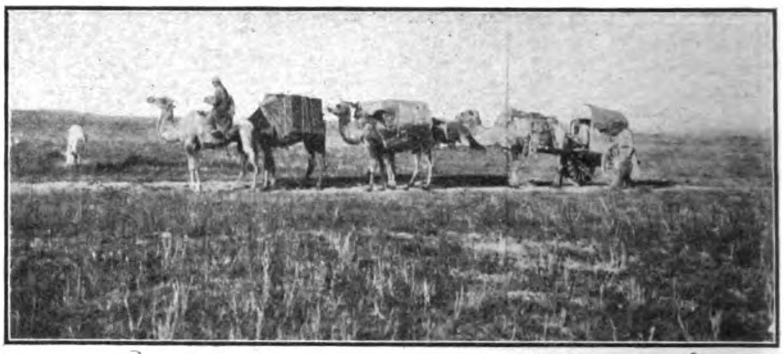
The great highway of North China is the old road which runs from Kaifengfu to Hsian over the loess plain, from Hsian to Lanchow through loess hills, and then over rubble and rocks, swamps, ditches and morasses of pasty alkali to the deserts of Turkestan. On this highway one may pass a thousand carts on a day's ride, hundreds of pack mules, great strings of camels and bevies of laden donkeys, not to mention horsemen bound on official and private errands. A hundredth of the value of the merchandise which passes over any one stage of that road in a day would hire a gang of workmen competent to put it in repair

A Road in Chili Province—Small Boys carrying Water to Miners



A Road in Chili Province—Pack Mules carrying Bags of Coal

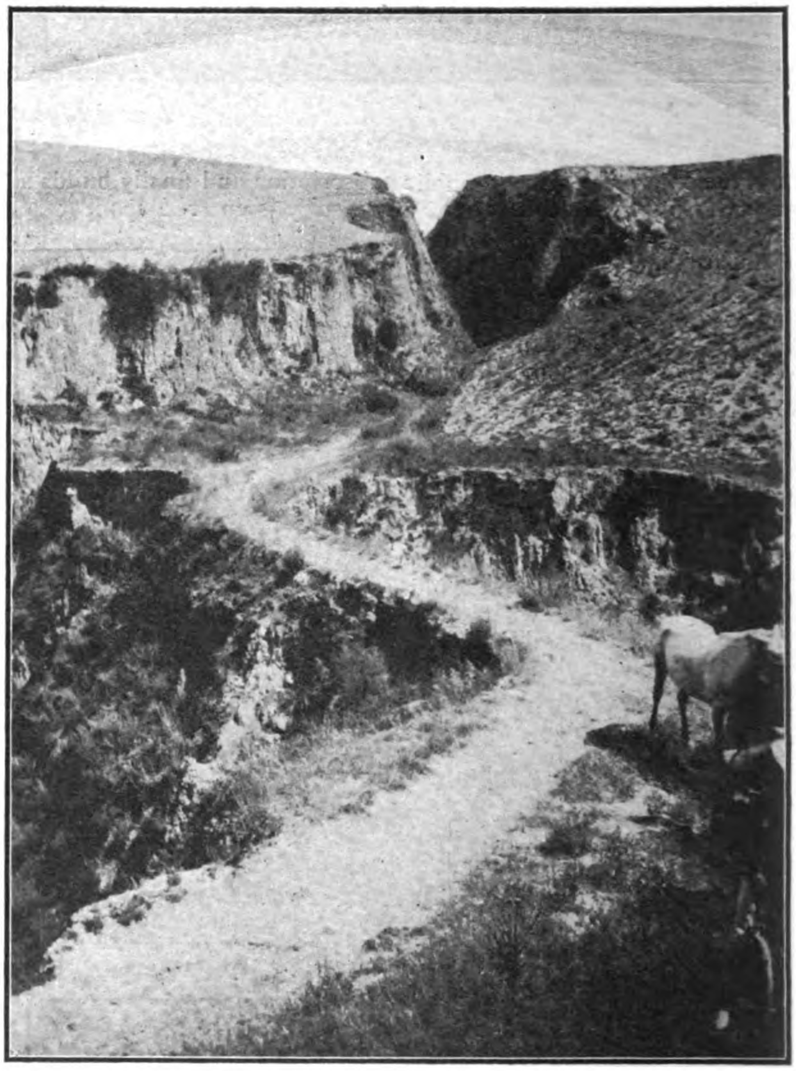
A Main Road about One Foot Wide through Cultivated Country



A Road on the Mongolian Plateau

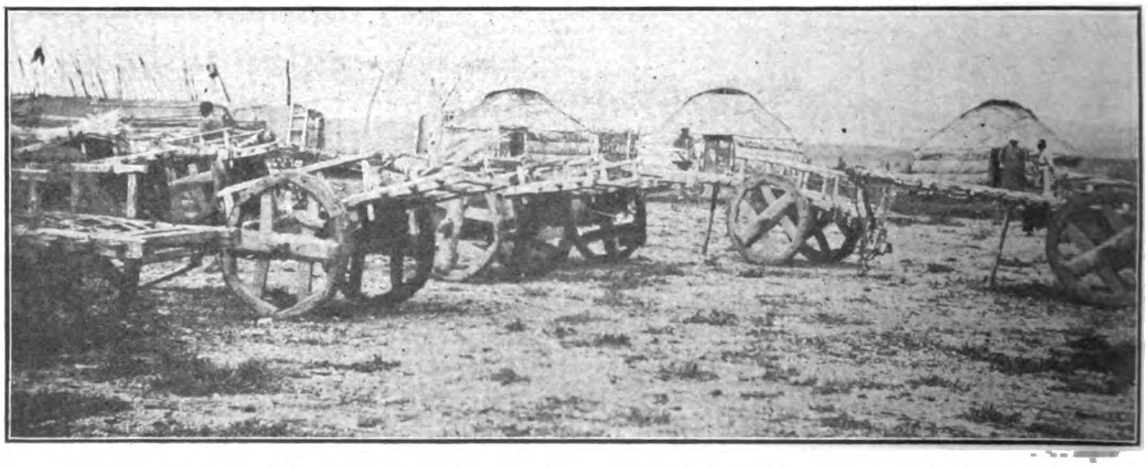
in a week. And yet it is one of the worst roads in China. Ruts are axle deep. The very road itself has eaten into the loess until it is like a great ditch, thirty feet deep in places, and for miles so narrow that one cart cannot pass another. In the dry season these gullies are dust holes in which a horseman cannot see his horse's ears. When it rains they are rivers of mud where carts stick fast and defy the efforts of six and eight horses to move them, while a score of yelping carters strain and yell, sink waist deep in the mud and lash their beasts, and a hundred conveyances on errands of more or less importance stand waiting in line.

Fights for the right of way in these narrow road-ditches are common. When two strings of carts meet where there is no passing, turning or backing, the drivers of each group insist that they shouted and cracked their whips to give warning and that the others came on heedlessly. There is a riot of strong language, then some one climbs the bank and punctuates his invective with rocks, and a general fight ensues. During one of the writer's tours two long camel caravans met in a defile near the Tibetan border, and in the fight which followed one man was killed and several were seriously injured. As camel drivers, who are accounted wild and ruthless, are beside the law, nothing was made of a fight among them and the officials shrugged their shoulders over the corpse that was brought in and suggested a small indemnity to the dead man's family.



A Pass in Shansi

A mountain road in the loess country provides the traveller with more thrills and palpitations and is provocative of more evil language than the mud sloughs of the flats. Scientists have said that loess has "a tendency to lateral cleavage," and wherever there is a road it makes manifest this tendency by cleaving away from the outer cart rut into gorges hundreds of feet deep. In the time-worn gullies there is not room for two carts, but on the slopes there is no room for one, and the traveller clings to the cart frame for miles while his outer wheel grinds along the rim of a precipice and precipitates avalanches which go rumbling down in his wake. If there is a heavy rain the torrents burrow holes in the very center of the road which descend to black depths unfathomed and join subterranean water courses. The horseman or pedestrian who travels at night goes along in constant anticipation of dropping into one of these caverns and of having a few tons of the road crust topple in after him. Where there is no mud there are holes, and where there are no holes there are rocks. There are stretches of road in the north-west strewn so thick with boulders and cobblestones that night travel is impossible. They lie on the smooth, hard surface of the soil and an energetic coolie gang could clear the track of them at the rate of a mile a day, but there they have been in the middle of the highway for the three thousand years or more that it has been a highway. Fifty miles further on, where the pacific rainful ends and irrigation begins, this same highway is the drain for



Mongolian Carts Camped on the Road in Mongolia—Yourts (tents) in the Background

THE ROAD THROUGH THE KALGAN PASS

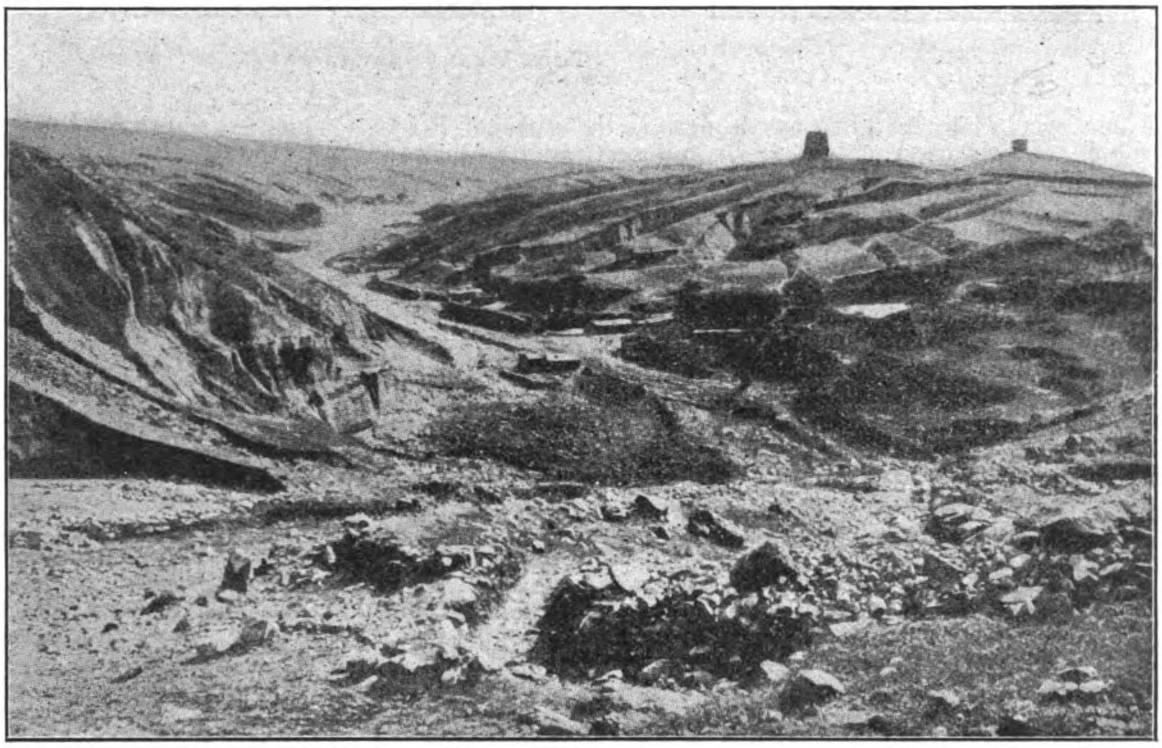
COMMON MISHAP ON A CHINESE ROAD

a few thousand square miles of irrigated land, and lies three feet under water in places for five months of the year. A few stones would do some good here, but when the earth took form from P'an Ku's remains, the stones cropped up in one place and the water in another, and in their present relation they are likely to remain until the universe resolves itself into the bones and flesh of the giant again.

The roads, such as they are, blessed with sun, wind and frost, show a remarkable tendency under these influences to heal themselves of their wounds from time to time, if the traffic is not too heavy; but in the cities and villages there is no such healing. Bad as a road may be the traveller always expects something worse when he enters a settlement. Filth is added to wholesome muck, and water stands in foul puddles where no sun reaches it, affording a picnic ground for ducks, pigs, and naked babies, and a series of sink holes for tired cart animals and overladen donkeys. The writer saw a cart mule fall in the mire gracing the main thoroughfare of Lanchowfu, the provincial capital of Kansu, and, with the weight of the cart on him, sank till the tips of his ears only showed above the black ooze. When he was dragged out he was unconscious.

In the streets where water carriers ply their trade in winter, the drippings from their water buckets form ice ridges two and a half feet high, as slippery as glass and as hard as steel. In such cities scores of horses and men fall and break their limbs every year. One good horse is worth fifty taels, which would buy enough sand or ashes to keep a whole street sprinkled for a winter, but in the best and worst communities alike no such measure is considered.

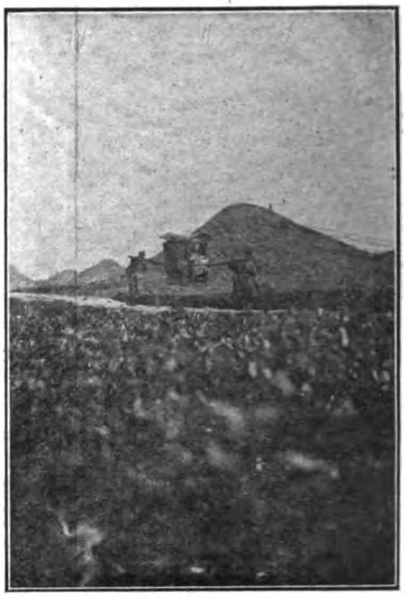
But one does not have to go to the ends of the Empire to find bad roads. There is little use in citing great commercial highways in South China, which are nothing more than nine inch paths along the tops of irrigation dykes, nor of cliff trails in Szechuen so narrow that no laden beast can negotiate them and upon which sweating coolies carry mule loads for hundreds of miles, nor mud rivers in Honan, nor rock roads in Kansu, where the traffic of centuries has cut ruts a foot deep in solid



THE MAIN ROUTE FROM KALGAN TO MONGOLIA—LOOKING TOWARD KALGAN

PLANKS FROM THE HILLS OF SHANSI

A PEKING CART IN SHANSI



Three Views of Roads in Kweichow Province

limestone, while the highways leading to the gates of Peking continue to be crazy patterns of frozen ruts and ooze holes in winter, and canals of black water in the rainy season. In Kalgan a man stood all night in the middle of a highway, with the mud up to his thighs, because he could not pull either leg out and because his shouts attracted no attention.

There are few railways in China and the bulk of the vast trade of the country is painfully carried on, where there are no waterways, with carts and pack animals, wheelbarrows and burden bearing coolies. There is no need to point out the enormous loss in wear and tear, loss of animals, delays, damage to freight, and the expense in human energy and nerve fibre which can be directly charged to the condition of China's roads. The Chinese are an astute commercial people, and nothing affects commerce so much as means of transport, but because the roads are the business of all and yet the business of none in particular, they are content to waste millions every year in combatting almost impossible conditions and to give grudgingly in cash when the subscription list for a suggested improvement comes around.

The continual shifting of officials was a part of the old system under which no one was permitted to feel too much at home in a community or gain too much influence over the people, and for countless centuries potentates great and small have spent their whole lives dragging painfully over China's hard roads. Through them the hardships of travel have become proverbial in Chinese literature, and the man who is forced by circumstances to "go out of his door" is an object of commiseration. Yet these same potentates, once ensconced in comfort and power, take little or no thought for those who have to come after them or for their own future trials on the road, unless they happen to meet with an accident or find themselves blocked on an important mission.

In south-western Kansu there is a mountain trail which has been used for centuries by Chinese and Tibetans as a commercial highway. The whole length of it, with the exception of a few li, could have been crossed in carts, but those few li, which boasted an unnegotiable rock or so and needed a little smoothing, barred all cart traffic until a certain minor official tried to take his family over the ridge a few years ago in a chair cart and found his way blocked. He went back and sent up a gang of laborers who cleared the road in a short time, took his cart over, and thereby opened the way for the usual stream of carts which might easily have been passing that way for the last two millenniums if any one had thought to smooth the path. The great conqueror Tso Kung Pao, who went west to fight the Moslems in Tung Chih's time, was a brilliant exception among officials. He was fond of trees, and for nearly a thousand miles in Kansu he levelled the roads, dug ditches and planted shade trees on either side as his vast army moved along. The trees of course took care of themselves, but no one has thought to improve upon Tso's road building in the last half century.

The itinerant merchant in China has everything against him and nothing for him. His trials are legion. Besides the divergences in weights and coinage, by which no one gains but the cash shops, the likin barriers, which relieve him of a share of his profits at every cross road, and the agony of dragging his wares over heart-breaking roads, he has the additional trial of the fixed ruts. Each large district in China produces carts with a certain length of axle, and these carts always run in the same fixed ruts, setting a gauge which the carts of no other district will fit. At the boundaries wheelwrights do a thriving business exchanging axles for carters who would go from one district into another. No one else profits; it is simply the custom. If the governors of the various provinces had written each other a few letters two thousand years ago and had agreed to adopt a standard axle, carts might now go from Peking to Kashgar without changing axles. If the governors of the same provinces were to take this step now it would have the same beneficent result, but the governors are no more likely to think of the matter in 1916 than they were in the year 1. In some districts where the execrable condition of the roads presents new conditions it is even necessary to change wheels. In the Kanchow district of north-western Kansu where the great "official" road is a morass five months out of the year, the narrow, iron-tyred wheels are abandoned, and wheels six feet high, with felloes four inches

A Motor Car on the Kalgan Pass—Clearing a passage through the Rocks

In the Loess Roads of Shansi

A Road in Shantung

wide and bark tyres are used. When the mud is very deep oxen have to be substituted for horses and mules, for oxen can sink deeper in the mud and still keep going. Anything, any makeshift, rather than improve the highway.

The first objection raised to road building or road improvement is that there is no regular fund of public money set apart for this purpose, and that road work eats up huge sums in labor even when materials are available. It is said that, numbering forces of all sorts, China has an army of more than half a mill.on men. The greatest problem which this force presents is not how to feed it, or clothe it, or house it, but how to get rid of at least half of it amicably. A disbanded regiment is a burden and a terror to the community. One-third of the present troops have no duties, no drill, no officers worthy the name, and little equipment. They constitute menacing hordes, not protective units. A great proportion of those who join, never expect to fight, but they do expect to "eat grain," and to be permitted to slouch about the streets of garrison towns in idleness. Put them to drill and they grumble, put them to work and they desert and sneak back to their homes. It would seem that a truly utopian reform might be effected if the now useless army was suppl.ed with picks and shovels and put on the roads. They would desert as they tired of it, but since it is desirable to get rid of them a few seasons of hard work should bring about a survival of the fittest which would relieve the apprehension of over-garrisoned districts and leave in the service of the Chinese nation the men who were really worth retaining and paying. Incidentally half a million men could work wonders on China's roads in a very short time, and the Ministry of War would have the satisfaction of knowing that its servants had vastly improved its own means of military communication. If roads permitted, a motor car could go from Peking to Kashgar in less than fifteen days. By cart at least five months are required for this journey, and the mail, carried by day and night couriers, takes a month and a half. In Turkestan, where the desert roads are so hard that traffic makes no impression upon them, it is possible to use light carriages of any gauge and to haul goods in four-wheeled Russian conveyances which cover nearly twice the ground in a day that a Chinese cart does. Four horses in China pull a cart and 1,000 catties of merchandise, and much less in wet weather. Four horses in a dray could pull more than two tons over the same country in better time if the roads were given a little attention.

If, in the course of road improvement, the entire Chinese army were to desert it would not be much loss, as the best authorities—the Chinese people—would readily admit; and there are still the prisoners. In China the prisoner's part has not always been to starve and accumulate filth. Some of China's greatest monuments were built by convicts and prisoners of war, and there is no reason now why the thousands of convicts who have no better occupation than warring upon vermin, should not be put to work upon village and city streets, if their numbers did not suffice to work any great change in the country roads.

It will be many years before railways penetrate to many of the richest districts in the Republic, and in the meanwhile the trade of a great proportion of the people is dependent upon the old means of transport. While the Chinese are waiting for the railways, it would be enormously to their profit to improve the existing roads. Their efforts would not be entirely wasted even when the railways reached every corner of the productive areas, for even though Europe and America have developed the most intricate net-works of railways, the horse is by no means an extinct animal in the Occident, and motor traffic, which requires better and better roads every year, has become a great commercial asset and a still greater arm of belligerent forces in war time.

JAPAN EXPORTS REFINED ZINC

According to a report by Mr. O.White, H.B.M.'s Vice-Consul at Osaka, exports of refined zinc from Kobe and Osaka in 1915 amounted to 3,700 tons valued at £311,000, out of a total export from Japan of nearly 5,300 tons, valued at £416,000. The conditions under which the zinc trade was conducted in 1915 were very similar to those prevailing in the copper trade. Exports in the early part of the year went to the United Kingdom and to France, Russia taking a larger quantity in the latter part of the year. Whereas, however, copper had been exported before the war, zinc refining as an industry was only in its infancy, the metal having been previously exported in the form of concentrates to Belgium. Prior to the war, Japanese refined zinc had to face severe competition in Japan itself from imports and was unable to pay its way. Everything changed with the outbreak of the war and the refineries, being free from competition, were only concerned how most rapidly to increase their output to meet home orders from abroad. The output, which was estimated at 5,000 tons in 1914, amounted to from 16,000 to 18,000 tons in 1915, and is expected to reach 25,000 tons or more in 1916.

From exporting concentrates Japan has come to importing same, and in 1915 supplies were imported from China and Siberia. Attempts were also made to obtain concentrates from Australia. Two companies were responsible for the greater part of the output in 1915, although small concerns between them refined some 2,000 tons of zinc. Hitherto, there has been only one factory using electrolytic methods, but the remarkable difference in price between the purest quality and the lower grades, and the difficulty of producing the former by the "dry" method, has led to the erection of two other electric furnaces, the total output by this method being now about 700 tons per month.

PROPOSED REMODELLED MINING LAWS FOR CHINA

Explanation of the Fundamental Principles

In a recent issue of the FAR EASTERN REVIEW we mentioned that a Commission headed by the well-known Canadian mining authority, Mr. G. G. S. Lindsey, had been appointed by Mr. Chow Tsz-chi, then Minister of Agriculture, Commerce, and Industry, to remodel the existing Mining Laws. The work of the Commission has been completed and Mr. Lindsey has departed for his home. In submitting the draft of the proposed new Mining Laws Mr. Lindsey forwarded a memorandum on the fundamental principles underlying them, and we are privileged to publish what he says thereon. Mr. Lindsey took occasion to place on record his appreciation of the time the Minister "so often devoted to consideration of the matter in hand, and for the valuable advice so often given."

The commission held many meetings, the fullest discussion took place on all important points, and on no occasion was any conclusion come to that was not unanimous. The special conditions pertaining in China, as Mr. Lindsey explained, compelled policies on some points which seem to be necessary here and which one would not adopt but for the special demands of the local needs, this particularly being the case in regard to small miners and the incidence of the production taxes.

Mr. Lindsey's Memorandum is as follows:

China being anxious to fulfil her treaty obligations with respect to mining, promulgated Mining Regulations and Detailed Mining Regulations in March, 1914; but these were objected to by the Treaty Powers on certain grounds, and by the mining community because of their complexity, the enormous amount of detail required by them being far too onerous, and the attitude of the State too paternal. The miner assumes that he knows how to run his own business. So an effort has been made to meet the objections raised by the Treaty Powers and also to simplify the laws so as to make mining easy for the person who really wants to work. The laws are not short, they provide for all foreseen contingencies, but they are simple.

The treaty obligations of China as to mining laws are to be found in several documents, but the clause in the United States Treaty is at least as comprehensive as any. By it "China will with all expedition and earnestness go into the whole question of mining rules; and selecting from the rules of the United States and other countries regulations which seem applicable to the conditions of China, will recast its present mining rules in such a way as, while promoting the interest of Chinese subjects, and not injuring in any way the sovereign rights of China, will offer no impediment to the attraction of foreign capital nor place foreign capitalists at a greater disadvantage than they would be under generally accepted foreign regulations, and will permit citizens of the United States to carry on in Chinese territory mining operations and other necessary business relating thereto provided they comply with the new regulations and conditions which may be imposed by China on its subjects and foreigners alike relating to the opening of mines, the renting of mineral land and the payment of royalty, and provided they apply for permits, the provision of which, in regard to necessary business relating to such operations shall be observed."

This is the substance of the treaty undertaking, and in my opinion imposes no obligation on China which China should not be glad, in her own interest, to assume. In a sentence the clause means that China will adopt modern laws, laws which experience has taught are essential to successful mining, and will place no restraint on capital, Chinese or foreign, being invested in mining in China, provided every one abides by the law.

If there were no such treaty obligations to fulfil, this is precisely what China must do of her own free will to exploit her hidden mineral wealth. Mining and metallurgy have developed into highly specialized sciences and the latter particularly can only be successfully and economically carried on by large capital and technically skilled persons by the agency of large modern plants, if the mine product is to sell in the world's market, and there for the most part it must sell, in competition with the like industry of other persons, working elsewhere under the same conditions.

China waiting till now to enact mining laws has this great advantage: it is possible to profit by the world's experience; experience which has cost some places, not so favoured by time, a great deal of money to acquire.

That China is very rich in mineral wealth is a fact not yet ascertained. That there will be found the average number of mines as determined by the world's record with minerals of average value as found in other places, China can by reason of her known geology reasonably count on. So one must deal not in delusions, but in the probable, and that teaches that China will be able to do about what others have been able to do.

It is equally fallacious to assume as one sometimes reads is assumed, that there are large margins of profit in successful mining. Some mines are fat, some are lean, and so profits vary; but on estimating what the general result will be in any country, average must be taken. To fix a tax, for example, except upon the basis of the average profits possible is to render impossible the working of the great majority of mines. The average profits of the successful mines in the United States for 1909 (and later years show the same results) when the output of the profitable mines was in value over $1,000,000,000 gold currency, did not amount to 15% on the capital. This calculation did not take into account the unsuccessful mines of which unfortunately there were only too many. There is no reason to suppose that China at the end of fifty years will not have an output equal in value to that of the United States in 1909 if she will begin now on safe and modern lines to develop her mineral wealth, but there is equally no reason to suppose she will earn a higher average profit.

Why do the Chinese not mine their own minerals on a large scale and in a modern way? They have so far failed to establish confidence in themselves and their methods that their merchants will not invest the capital necessary to this end. They will soon learn how to do so and the local money will be forthcoming, but the lessons will be learned from the foreigner who has himself learned how to do it, and whose confidence in his methods justifies his spending his money to do it. From him the Chinese must learn at home, not abroad, how to do the same thing, and how to manage and control the native mining industries. But foreigners cannot, except in isolated cases, mine in China under the existing laws. Let them do so and there is no reason to suppose that the Chinese will not in twenty-five years take entire charge of their own mining and metallurgical enterprises, by which time they will have learned how. They will then have created mining industries in which foreigners will be glad to invest their money as they do now in Chinese mining enterprises in the Malay States. But at present not even the Chinese of Malay will invest in Chinese mining enterprises and this because, like the foreigner, he cannot profitably carry on under the existing laws.

Having in view the desirability of making laws which are simple, and which will encourage Chinese and Foreigners to

develop China's mineral wealth on modern lines, the "China Mines Laws" have been drafted accordingly.

The small miners of China are very numerous. It has been found in practice impossible under the existing Regulations to induce them to delimit and record their claims and to secure title. But they must still be protected. So it is provided, as to existing miners, that if in the future they neglect their duty to themselves and the law as they have in the past, they will nevertheless, when danger threatens, be protected by having a claim, of a fixed standard size, staked and recorded for them. At the same time they are free, if they will but comply with the law, to take as large a claim as the largest corporation. This protection continues for the next ten years.

The investment of foreign capital is by the laws in no way impeded. It is given the same opportunity as Chinese capital. To encourage the Chinese to invest their money and become partners in foreign mining corporations in China, the Chinese are to be offered the opportunity to take a quarter of the shares. All foreign corporations would welcome the Chinese as participants in their ventures and it is undoubted that it would be to the advantage of any foreign Company to have Chinese shareholders. If the Chinese do not care to participate in this way the foreign corporation may sell the segregated quarter of its shares, or so many as are not taken by Chinese, to others.

All minerals in China belong to the State. In many instances the surface rights of lands underlain with minerals belong to private owners. These latter's rights are carefully protected in the laws and when the surface is taken for mining purposes the private owner must be properly compensated. But in addition to this, and by way of most generous treatment of the private surface owner, the State, by the law, will pay over one half of the annual rent obtained from the person who leases any mining claim from the State, to the private owner of the surface, if such there be.

The foundation principle for any country to adopt if the system of giving out concessions to the few who alone can afford to purchase them is not thought wise, and the many are to be given a fair chance to acquire mining claims, is that which encourages the prospector. And equally important is it to make clear that when the prospector has found something he must be given a secure title, subject to the conditions that he obeys the law and pays a fair tax to the State.

The laws are framed to encourage the prospector and give him secure title. The prospector is the person who finds mineral deposits and he has been the foundation of success of all modern mining. Very few prospectors succeed, but the many go on with the search lured by the hope of gain. Those who find must be fairly treated or you kill off the race, and without them you cannot succeed.

The object of the laws is to secure all who will to prospect. Prospectors cost the State nothing and perform for it a valuable service. To secure his right the prospector must obtain a permit or license. A foreigner must produce a certificate from his Consul that he is a fit and proper person to have such a license, then he gets one.

Having discovered mineral the prospector stakes a claim and records it. No minimum size of claim is fixed, so that no one may be precluded from staking a claim no matter how small. On the other hand big operations can only be carried on by big plants and the cost of these must be earned out of the mine. The plants have a long life. To deduct their cost from earnings in a few years would leave no profits. The maximum size of claim must, therefore, be such as will permit of mining ore therefrom for a fair period of time, and this principle has been adopted in fixing the maximum size of claims.

To prevent claims being staked and held for speculation instead of being made productive, all lode claims, (these are for the most part metal claims), have to be developed by doing a fixed amount of work before final title can be obtained. And with the same object rents are increased from year to year during the early life of a claim, if the holder does not work his claim. If he does, the production tax his output pays, relieves him of the extra rent. The object of the laws is to make those who acquire properties work them or give them up, and so prevent taking up claims for speculative purposes only. What is aimed at is production.

After surveying his claim, and in the case of lode claims doing the necessary work, application is made for a lease. This is granted conditional on the payment of rent and production taxes to the State. After three years if there be no dispute the title becomes indefeasible except for breach of covenants of the lease. This affords absolute security of title. Coal and lode claim leases may be for not longer than fifty years, and placer leases for from one to twenty years. All leases are renewable if there still remains mineral to be worked. Holders of large placer areas are obliged to do a large amount of work and pay heavy rentals each year or forfeit their leases.

Nothing is more perplexing and nothing is more certain to check mining than uncertainty as to the amount of taxes imposed on the industry and on getting the product to market. Hitherto native customs dues and likin (transit dues) have proved a great deterrent. The principle is assented to of including these in the production tax, which when paid will permit of the transport of ores everywhere in China without further payment.

This easy transportation is essential if encouragement is to be given to the treatment and refining of ores in China, and no one doubts the wisdom of this. Reduction and refining must for the most part be done by customs smelters, that is, smelters which will treat the ores of any miner who can carry his ore to them. To further encourage home manufacture the production tax has been made higher on exported unmanufactured ores. By the old Regulations the production tax was one and one half per cent of the pit's mouth value of the ore. On the ore is the proper place to put the tax, but it did not succeed in practice because the older habit has been to collect the tax on the finished product or refined metal. In deference to the seeming necessity to continue this older practice the production tax has been placed on the finished product, although this means taxing manufacturing processes.

The value of the manufactured metal is often many times the value of the mined ore; the relative values depending in part on the process costs. To reduce a production tax of one and one half per cent of the pit's mouth value of any ore to its equivalent percentage of the value of the metal produced would give a different result for every mineral, but would bring the average much below one percent. So to reduce transit dues from two and one half per cent of the ore value to the equivalent of the metal value would bring down the percentage to about one. To embrace transit dues, native customs and production charges in one figure, two per cent of the value of the manufactured metal has been determined on.

This figure, two per cent, is too high; compared with other countries it is very high. But the Minister of Finance (then Mr. Chow Hsueh-shih) will consent to no figure which might result in reduction in present revenue. This policy which loses sight of an ultimate large increase in revenue from new business, is not one that would guide every one. But to this ruling it is necessary to yield, and so a production tax has been fixed which will not reduce the present revenue derived from mines. As a result tin and antimony must continue to submit to the present rates of taxation, both higher than two per cent.

When one realizes that one-half of all the freight traffic of the United States consists of the products of the mines, it is difficult to appreciate a policy as to taxation which does not aim at developing new mining business. Of every dollar spent on mining, ninety cents, or nine-tenths of it, is spent on work, material and transportation. The indirect benefits of the nine-tenths expenditure to the State is far greater than the one-tenth of profit to the person who originates the industry. The Commission would have been more encouraged if a further reduction could have been secured in the amount of production tax.

All that has been said of the too high production tax (including likin and native customs) applies with equal force to export duties. It is very desirable to bring the aggregate amount of taxes to which minerals are subjected to a reasonable amount. It has not been brought down to a figure which will

not continue to place China at a disadvantage as compared with the rest of the world. Likin, native customs, export duty, and coast trade duty at the tariff amounts now aggregate more than ten per cent of the value of the exported article. If the margin of profit for mineral industry is twelve per cent, and it is not more on the average, no one will put capital into a highly speculative, hazardous enterprise like mining for a possible two percent profit. Better to lend money on safe securities at six per cent, such as bonds and mortgages, which require no expenditure of time and technical skill, necessarily devoted to scientific mining.

As to export duty, what has been done is this: The tariff puts these duties at five per cent of the value, but the value was fixed long ago. The present day values of minerals are so in excess of the earlier values that the amount by tariff collectable as duty on to-day's value falls on the average to two and one-half per cent of this. So instead of concealing this important fact, the truth has been told by fixing the export duty at the actual or at two and one-half per cent of present day values. In this way the prospective miner is frightened as little as possible.

An interesting side-light on export duties is thrown by what has actually happened in China. Miners could not afford to pay even the collectable duties. The industry could not stand them. The consequence has been to bring about not a lowering of the duties but the granting of special privileges in numerous cases, cancelling the duties altogether. This had to be done because of the necessities of the cases in point. And the astonishing result is, when the figures are worked out, that if from the average export duty of two and one-half per cent, collectable by customs, there be deducted the duties not paid because of these special privileges, the actual amount collected averages one and one-half per cent of to-day's value of all the minerals exported.

It seems unfortunate to exhibit to the intending investor the possibility of having to pay a five per cent export duty when the real amount on the average is one and one-half per cent. In the law export duty has been placed at two and one-half per cent. I have said in so fixing this the truth has been told. Not all the truth,—the privileged persons were left out. Two and one-half per cent is too high and the earliest opportunity should be taken to reduce the duty. To cancel the special privileges and reduce the export duty to one and one-half per cent would be preferable, and result in no loss of revenue.

China's sale of minerals to her own citizens would be much increased if coast trade duties were abolished. Chinese and Japanese coals in vessels for example leave their various ports with the cost per ton about equal. The duties and rebates as they are to-day give the bulk of the coal business of the coast cities to Japan. Why continue coast trade duties? They are an imposition on China and injure her industries.

The Departmental machinery for working out the laws provides for the division of China into mining districts with a Recorder in each district. An Inspector's department is arranged, members of which will move about to wherever it is necessary to make inspections and reports. The Director of Mines has charge of everything at Peking under the Minister.

All disputes are to be settled by the Recorder in the first instance. If the parties are not satisfied with his decision they may appeal to the Director of Mines and provisions for original hearings and appeals are worked out in detail. If the parties are even then dissatisfied they may settle the dispute themselves by appointing each an arbitrator and these two appointing a third arbitrator whose decision shall be final. If the parties fail to agree on a third arbitrator the Minister of Mines appoints one of his foreign technical advisers who has been not less than two years in the service of the Department.

Provisions are contained in the laws for the acquiring on proper terms as to compensation, all rights necessary to carry on mining operations, such as surface rights, timber rights, water rights, drains, tunnels, road rights, rights of way and easements; and a Schedule of fees is included.

NEW SIBERIAN PORT

The port of Nikolaievsk, at the mouth of the Amur River in Siberia, which will be opened for navigation on June 14 will provide a new channel for foreign goods and war munitions to reach the Russian market. The opening of this port will materially relieve the terminal yards of the Trans-Siberian Railway as it is anticipated that much of the freight which has been going to Vladivostok during the winter months will now be diverted to the new port. Here it will be transshipped to river boats and transported up the Amur to Stretyinsk, where connection is made with the Amur railroad line, a part of the Trans-Siberian Railroad system.

JAPAN TO WORK CHINA MINE

An agreement for developing the Taochung Iron Mine under Japanese control has been arrived at. The iron mine to be worked is situated at Taochung, Fanchang-Hsien, Anhui Province, and contains more than 60,000,000 tons of ores which are said to contain 65 per cent. of pure iron against the 60 per cent. usually contained in Taya ores. The negotiations which the Sino-Japanese Industrial Development Company has carried on since 1914 with the Chinese authorities have recently been satisfactorily concluded, and the rights to work the mine have been definitely conceded.

As to the management of the mine, the company has decided in view of the provisions of the company's articles of association, that the rights shall be transferred to some other private business corporations.

F.M.S. TIN EXPORTS

The export of tin from the Federated Malay States during the month of March amounted to 3,696 tons compared with 3,313 tons in the previous month, and 3,653 tons in the corresponding month last year. The following is a comparative table showing the export tonnage for three years:—

	1914.	1915.	1916.
January	4,183	4,395	4,316
February	3,555	3,780	3,313
March	3,839	3,653	3,696
Total	12,377	11,828	11,325

NEW SOUTH WALES FISHERIES

The Government deep-sea fisheries inaugurated by the State of New South Wales, have proved a success in providing cheap fish for the people. In one week three small trawlers landed 65,000 pounds of fish, one boat alone bringing in 15 tons, which is said to be more than a similar boat would catch in the North Sea.

SIZE OF JAPAN'S CITIES

The Yokohama municipality has announced the census returns in the six big cities in Japan at the end of last year, as follows:

	Population	Households
Tokyo	2,244,796	584,709
Osaka	1,460,218	309,037
Kyoto	539,153	93,864
Kobe	498,317	114,162
Yokohama	428,663	89,001
Nagoya	389,272	91,258

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CONTENTS

	PAGE
The White Peril	453
The Bad Roads of China	460
Proposed Remodelled Mining Laws for China	466
New Siberian Port	468
Japan to Work China Mine	468
F.M.S. Tin Exports	468
Trade Possibilities in China	469
Anglo-American Cooperation in China	471
The Finances of China	462
Chinese Eastern Railway Returns	472
China Reverts to Republicanism	473
New Zealand Hydroelectric Power Scheme	484
Japan's Hydroelectric Plans	484
American Bridges for Shanghai	485
Engineering, Financial and Industrial News	487

TRADE POSSIBILITIES IN CHINA

Arms are being vigorously furbished for the great commercial combat which is destined to take place after the war; and one of the greatest battle fields will be provided by China. Already the emissaries of various prospective protagonists are abroad in the land reconnoitring and laying their plans, either searching for new avenues for trade or preparing to take what was previously held by the Germans. Probably the most active at present are the Japanese. Not only does territory attract them, but also they have special reasons, apart from those of a purely economic character, to see the trade statistics of Japan in China head those of any other country. Great Britain has long held supremacy in this direction, and the signs are that she will endeavor to maintain it. Her merchants will, naturally, make every effort to capture the German trade, and in that particular direction will be accompanied as far as possible by their Allies. It is certain that Germany will not for many years be able to carry on the systematic campaign which characterised her activities before the war. Then her representatives virtually stopped at nothing to get the business, though in many instances they demonstrated an enterprise and an initiative such as has not been exhibited by their older rivals in the field. It is not for a moment suggested that all of those methods ought to be copied. Many of them were far from savoury. The system of giving long credits, of providing goods inferior to sample, of bribery and corruption, of indulging in speculation, calls for the strongest condemnation. In the latter connection it is recorded that German firms at Hankow have sold export produce in Europe and America long before it has been on the Hankow market, or before it has been grown.

An aspect of German trade, which is worthy of note, however, is the co-operation which existed between the merchants and the industrial banks in Germany. This union of interests has helped the merchants to establish themselves well where they trade, providing adequate godowns and up to date equipment to carry on a business which requires a large volume and small profits to enable the extensive foreign staff and costs of installation to be paid. In the machinery trade German manufacturers established themselves firmly chiefly because of their liberality to the purchasers in the matter of credit, and as often as necessary in accommodation of a financial kind in effecting the installation of plants. The fact that such a practice is able to be followed indicates the close connexion obtaining between the importing houses and the financial establishments in Germany. With most other nationals the importer has to bear the responsibility and take the risks attendant upon financing purchasers. The manufacturer invariably refuses any assistance in this regard, and because industrial development is so backward and because people with capacity to start industries are invariably short of the capital to acquire the necessary plant they are driven to the source where they can obtain the required assistance. The American and the British manufacturer pursue the not always primrose path of conservatism and decline to meet the needs of the time, even refusing, in the majority of cases, to provide sample machines for exhibition purposes.

In these respects some change is essential if trade is to be expanded and industries in China developed. Provided financial assistance is available there is abundant opportunity for the installation of manufacturing plants, the financiers being able to stipulate what and where machinery should be bought, and have the control of the established factory until the equipment has been paid for. This is an aspect of trade which must receive attention, and which calls for the co-operation of banker, manufacturer and merchant. German houses did extensive business along these lines and gained the premier position in many places. Another method followed by Germans was to send men into the interior to study conditions, to pave the way to meet the demands of the market, and to give advice to prospective purchasers. The merchants or manufacturers were content to pay men to sit tight in various localities for considerable periods without becoming flustered because no orders were forthcoming. The men thus paid were able carefully to develop the field, the first order obtained bringing sufficient to cover

expenses to-date and more. Where the Germans have taken participation in manufacture they have, where profits have been obtained, secured their share, and it was consequently to their interests to see to it that the factories thus established were well and economically conducted, a matter to which their representative gave careful attention. Not only does this practice tend to a wider sale of machinery but it also makes for the adoption of German methods of manufacture, and can be calculated to create a predilection for German material.

The time has now come when the manufacturers of America and Great Britain should recast their systems of doing business in the East. Old-time methods which made fortunes for the few who then fared this far forth to harvest what there was to reap can not stand the keen competition which modern development has created. The manufacturer who desires orders must now be prepared to supply what the market demands and must be prepared to suffer disappointment if he imagines he will be able to compel the market to take what he manufactures. The Germans discovered this secret of getting on with the Chinese early in their career in this field, and they have done what they could to meet the wishes of prospective purchasers, with the result that they managed to work up particular lines in which they held virtual monopolies. In this direction manufacturers who desire to enter the China market might very profitably make close investigation of possibilities. There is a tremendous field for enterprise, not limited in any direction. The country is not one of vast virgin spaces like Canada and Australia. It is thickly populated; is studded throughout with cities, and towns and villages, and wherever there is arable land there is intense cultivation. The purchasing power of the people is not high, but there is a great demand for necessaries which cannot yet be made in this country, and that demand can be considerably increased if systematic assistance can be given in the development of industries. The standard of living will rise in proportion to the number who can find support in other avenues than cultivation, and it is to the interests of all manufacturing and trading countries to see to it that China is assisted to expand along the lines that have made for wealth in other parts of the world.

America and Great Britain will find Japan their keenest competitor after the war. That country has taken the greatest advantage of the occupation of others during the war to consolidate her position, but unfortunately for her suppliers the politicians have been so eager in pursuit of their desires and forgetful of the best interests of their manufacturers, that they have managed to alienate the friendship of the Chinese people. However, Japanese are peculiarly equipped to deal with the Chinese if they find it essential to cultivate friendly relations. At the moment they are depending upon the tactics of the bully, trusting that they will pay. The day is very likely to come when they will discover that they have erred, but once that day dawns the Japanese will adapt themselves to circumstances without loss of time and will at all costs readjust their relations so that they will be able to meet competitors. There is, of course, room for all in China for very many years to come, but it behooves those who wish to establish themselves thoroughly to take the necessary measures promptly and effectively.

There are signs that the British and the American manufacturers are waking up to the desirability of a change of methods. Both now have Chambers of Commerce established in Shanghai, and elsewhere, and both are preparing to develop trade as it has not been developed before. The war has materially handicapped the British for the time being but they are preparing for the day when they will be free to unleash their capital. The Americans have shown more activity with capital during recent months than at any time since their advent in China, and representatives of large American financial syndicates have been in the country investigating possibilities, and more are apparently coming.

In another article we specially deal with the desirability of co-operation between Great Britain and America in this country. Great Britain has been seriously affected by the war, and from the blood of Great Britain and her allies Americans have drawn riches undreamt of, and there is evidence that this fact is not unrealised by Americans. Because of this, and more because the two nations constitute the great Anglo-Saxon race, it is to be hoped that some unity of action in such a field as China will be possible. It is a development that would be a God-sent gift to China, and a consummation which statesmen might well burn the midnight oil to effect.

Reporting on Germans and the machinery trade of Hankow the British Consul-General says:

"In the case of more inportant classes of goods, such as engineering material, electrical machinery and the like, their success is undoubtedly due to very extended credit terms, payments in some cases being spread over five, seven or even ten years. It is again reasonable to suppose that the burden of such a system of credit is not borne entirely by the importing houses and that it points, indeed, to a very close connection between the latter and the German manufacturers, who must also bear their share.

"To these hazardous but still legitimate and possibly praiseworthy methods of business must be added others, which reputable British firms have never been willing to adopt. It is notorious that the large German importing firms make a practice of paying retaining fees to high officials in Peking and other important centres in order to obtain business, and few business men in China would be disposed to deny that perpetrators of the even more corrupt practices, common in the expenditure of official or trust funds in this country, find willing coadjutors in the German firms who capture the orders.

"Coming to the question of German and British goods as distinct from German and British importing houses, one finds that German manufactures enjoy an advantage due to the application of a similar principle. German manufacturers seem to be more alive to the requirements of the Chinese market and to be more willing to assist the merchant on the spot. I have already referred to the question of credit. Much machinery of British origin is and has been imported through German firms. The latter, however, also represent German manufacturers and are naturally prone to push German in preference to British goods wherever possible. German manufacturers gain many advantages by being willing to send out free to their agents on consignment samples of even large machines. If the machine is sold, so much is gained; if not, it remains on show. Samples of British machines, even for show purposes, must nearly always be purchased by the importing firm. The firm which attempts the business has to suffer the locking up of a large amount of capital, in which the British manufacturer refuses to contribute a share.

"The German manufacturer again is generally more alive to the importance of sending out catalogues which are fully illustrated and descriptive of his products, and which contain information to enable a customer with perhaps only a superficial knowledge of engineering to select the exact plant which will suit his requirements both with regard to output and cost. In this connection a British merchant suggests to me that British manufacturers would do well to consider the preparation of separate illustration sheets, each dealing with one particular machine, which can be given to prospective purchasers. The Chinese buyer, he says, always wishes to have a picture of the machine he is purchasing, and the sheets might advantageously contain a short description in Chinese of the particular machine illustrated.

"Another factor operating to the advantage of German manufacturers is the fact that German firms are in general more willing to finance Chinese enterprises, especially of a semi-official or official nature. It is made a condition of these contracts that the whole of the machinery and supplies for the period of years covered by the loan shall be purchased exclusively from the firm advancing the funds. This leads to the consideration, which is ultimately the reason for the greater activity of Germans in all branches of trade in China, namely, their lack of colonies and dependencies as an outlet for their capital. It is argued that British firms are able to make use of their resources with greater security and profit in other parts of the world. The examination of this explanation for the comparative neglect of China trade is, however, outside the scope of this report.

"In concluding my remarks on the present preponderance of German enterprise I would draw attention to the advantages

reaped in the import business by the presence at places far inland of Germans primarily employed in purchasing export produce. These men, the majority of whom speak Chinese, are all over the country in places unvisited except by missionaries and travellers, at several places on the Upper Yangtse and at Chengtu, 2,000 miles by water from the coast. They have unparalleled opportunities for gauging the possibilities of extending the use of German goods and for soliciting orders for machines and the like. It is unlikely that they do not make full use of their time. Their principals adopt that wise policy of not expecting immediate business and are often content to keep an agent for months in some provincial station waiting for orders, which when they do come, more than pay for the delay.

"The effect of the war on the German import business has up to the present been slight. It is true that supplies from Germany and Austria-Hungary have been cut off and this fact must inevitably sooner or later give an impetus to British manufacturers. Up to the present, however, the losses thereby inflicted on German as compared with British firms have been minimised by the fact that the stocks held in the Treaty Ports and by dealers in nearly all branches are very heavy, and no new business is being done even in British goods. The heavy fall in the value of silver has accentuated the stagnation and further difficulties arise from the fact that up-country dealers are holding out for higher prices for existing stocks. Moreover, prices of export produce have on the whole fallen so that in addition to general tightness less money is available for purchasing foreign goods. It will be seen that the immediate prospects of the import trade are not favourable.

"The following articles imported into Hankow have hitherto been largely of German or Austrian origin:—Machinery of all kinds; small tools; hardware, such as galvanised corrugated and flat sheets, wire nails, wire, steel plates, rods and bars of various sections, window glass, nail rods, copper and brass bars and sheets; needles; Berlin wool; braid; buttons, ribbons; trimmings; lamps; soap; wash-basins and enamelled ware; aniline dyes; beer; chemical products; electrical material and fittings; cups and saucers and generally small metal goods of inferior quality and low price.

"German manufactured piece-goods and fancies imported here consist chiefly of cheap waste-cotton printed blankets and small sundries such as baby caps, vests, men's caps and hats, etc. The particulars of the blankets are as follow:—

Size: 58in. wide by 80in. long.

Weight: From 2lb. to 3lb., the most popular being 2lb. and 2½lb.

Retail prices in Chinese shops:—

2lb.	$2.00 each—about 3/5
2¼lb.	$2.20 each—about 3/9
2½lb.	$2.40 each—about 4/1
2¾lb.	$2.80 each—about 4/9
3lb.	$3.25 each—about 5/6

"Cotton trouserings are imported also from Austria and Italy.

"Most of the trade in imports is done with dealers in Hankow and the exploitation of the interior and treaty ports further removed from the coast is left entirely to them. There is no doubt that the business could be much expanded if this exploitation could be undertaken to a larger extent by foreigners. The firms in China, being merely merchants, are not in a very good position to do this, unless they are materially assisted by manufacturers and exporters at home. Some lines, of course, lend themselves better than others to this treatment. A considerable amount of organization is necessary. That of the kerosene oil and cigarette trades is admirable, and one firm has found it pay to recruit its staff to a considerable extent from the Universities, placing the men from the start in positions of responsibility. Some firms again have been very successful in organizing up-country agencies under Chinese merchants for the sale of sewing machines, knitting machines, patent medicines and the like. Many other articles could also find an extended market in this way. It would, of course, be essential that the goods should be sent out on consignment to agents."

ANGLO-AMERICAN CO-OPERATION IN CHINA

There is general belief that the end of the European War will see the beginning of an economic struggle not less bitter in its intensity. All the belligerent nations will have used up a large percentage of their capital, and will seek to make good their losses in the least possible time. If every nation acted independently the military hostilities would be followed by a commercial war in which the hand of each of the commercial nations would be turned against all others, erstwhile enemy and ally alike. From every point of view this would be undesirable, and in fact would be liable to bring about, sooner or later, another appeal to arms. As a precaution the Entente Powers and the Central European Powers respectively have already begun to formulate plans for concerted economic action. The Germanic States are endeavouring to form a Central European Customs Union to oppose an economic combination composed of Great Britain, France, Italy, Russia and Belgium. There seems to be some doubt whether Japan will join the latter combination. It is also impossible as yet to say what effect this concerting of economic effort would have upon commercial affairs in China.

Assuming that Great Britain will not lose her freedom of commercial action in China after the war as a result of arrangements made with her allies, a most favourable opportunity will be presented for closer association between British and American interests. Both countries are pledged to maintain the independence of China and the policy of the Open Door. There are other countries so pledged, but, as far as the Chinese are concerned, it is to America and Great Britain that they look with most confidence for a due performance of their undertakings. Neither country is suspected of political designs, nor of a desire to acquire territory at China's expense. Their interests are purely commercial, and the Chinese, consequently, are inclined to welcome the investment of American and British capital. They feel that the larger the material interests of Great Britain and America become in China, the greater the assurance that the country will be allowed to work out its own political salvation without interference. However large such interests became, the Chinese feel confident that there would be no danger of the establishment of exclusive spheres of influence, or the impairment of China's sovereignty by the creation of railway zones. It is certain, therefore, that the Chinese would heartily welcome the co-operation of America and Great Britain in the work of developing the resources of China.

Co-operation would obviously be more beneficial to the two countries concerned than competition. As they have common commercial ideals there would be little difficulty in arranging the terms on which they could work together. The compact would be commercial and not political, and consequently its arrangement should not be more difficult than was that of the associations of American and British capital that already exist. The splendid position of the British-American Tobacco Company to mention but one successful joint organization, is a proof that co-operation is not only possible, but may be attended by striking success. There would be no need for direct support from the Government of the two countries. Their goodwill would, of course, be desirable, and it is certain that it would be freely extended. The British, having been longer in the field, would be able to contribute to the common fund, besides their moiety of the capital required, a vast store of knowledge and experience of local conditions, while the Americans would contribute commercial alertness and familiarity with huge financial and engineering undertakings. Such a combination, reinforced by the goodwill of both their Governments and of the Chinese people, would be in a commanding position. The combination would need to have available a large capital fund, and it would be desirable for its constituent parts to consist of a number of strong financial concerns and leading manufacturing and contracting houses of both countries. British manufacturers in recent times have found it advisable to form combinations in which several firms in non-competitive lines are associated. The same principle could be applied to the international combination. For individual firms, and even for

small combinations, the initial cost of establishing branches throughout China is practically prohibitive. But it is essential that any concern that wishes to carry on business on a really large scale in China should be represented in every important centre, and this could easily be accomplished by a combination on the lines that we have suggested. Co-operation of British and American interests in China on an extensive scale is feasible and desirable, and it is sincerely to be hoped that no economic arrangements resulting from the war will prevent its inception.

THE FINANCES OF CHINA

The declaration of a moratorium by the Chinese Government on May 12 was not altogether unexpected. In the provinces in which independence has been declared the branches of the Bank of China and of the Bank of Communications were taken over by the revolutionaries. It is stated, probably with justification, that in these branches were large quantities of notes that had not been issued, which were immediately placed in circulation. Furthermore it is alleged that the subjects of a certain Power, that has shown rather more than platonic sympathy with the revolutionaries, have been accumulating the notes of the two banks in question with the object of creating embarrassment by suddenly presenting a gigantic number for payment.

Apart from sinister activities of this kind, the action taken by the Yokohama Specie Bank in withholding payment of the surplus salt revenue which Sir Richard Dane had certified might safely be handed over to the Chinese Government, caused serious difficulties. Although the amount withheld was not of itself of great importance, the action of the Japanese bank practically compelled the other banks in the Consortium to announce that in the future they would follow its example. Thus the Chinese Government found itself deprived of a monthly revenue of several million dollars at a time when, for obvious reasons, ordinary revenue collections were below the normal. In such circumstances it was deemed the part of wisdom to take the steps necessary to conserve the silver in the possession of the national banks. It is declared that the banks hold sufficient silver to meet foreign engagements for several months to come, and to pay the army. China's credit depends upon her ability promptly to discharge her obligations to foreign investors, and, though it sounds paradoxical, the declaration of a moratorium was regarded by the Government as necessary to preserve her credit.

Apart from other considerations, it is regrettable that a financial crisis should be created in China by the action of one of the foreign concerns which obtained certain powers by the terms of the Reorganisation Loan Agreement. The Chinese have always been bitterly opposed to the idea of an extension of foreign control over the finances of the country. The excellent results obtained by the co-operation of foreign and Chinese officials in the administration of the salt monopoly has, however, convinced responsible Chinese that, without parting with control, they can with advantage make full use of sympathetic foreign assistance in the collection of revenues. Had nothing occurred to prevent it in all probability foreigners would, in the near future, have been engaged to reorganise other revenue producing services. Undoubtedly this possibility has been rendered more remote by the action of the Consortium taken at the instigation of Japan. The Chinese are naturally inclined to doubt the benefit of reorganizing their revenue producing departments if the increased revenues can be withheld upon the initiative of any Power that professes anxiety with regard to China's ability to meet her engagements. The danger of political considerations operating to create such anxiety is obvious.

While the financial situation in China is far from bright, it would be easy to be unduly pessimistic. The European War has adversely affected the Customs receipts, but it is reasonable to expect that they will show an unprecedented increase when the belligerent Powers transfer their activities to the commercial arena. Moreover the differences between the Central Government and the independent provinces must be settled sooner or later, and with the restoration of normal conditions the revenue will also speedily become normal. Notwithstanding the loss caused by dislocation of trade on account of the unsettled conditions, there has been no large amount of actual destruction of wealth during the hostilities in the South of China. For these reasons the financial future of China is less gloomy than it would appear to be from superficial observation.

CHINESE EASTERN RAILWAY RETURNS

The returns of the Chinese Eastern Railway for the conveyance of passengers, luggage and goods, for the year 1915, are as follows:

Passengers, by general and reduced tariff, including immigrants and military people		1,286,655 persons.
Luggage and parcels		386,515 pouds.
Amount collected for the conveyance of passengers and luggage	Roubles	5,613,738,98
Various goods transported		139,563,251 pouds.
Increase over 1914		57,084,268 „
Total Amount collected, including various other items of revenue independent of the tariff, and receipts from supplementary undertakings	Roubles	37,802,413,37
Increase over 1914 ..	„	13,965,286,29
The net profit is expected to be about..	Roubles	18,000,000

Following is a statement of the totals of receipts and expenses from 1911 to 1914:

Years	Receipts.	Expenses.	net Profits.
1911	Rs. 19,577,429.51	Rs. 15,830,971.65	Rs. 3,746,457.86
1912	20,353,023.84	15,434,360.94	4,918,633.90
1913	22,797,535.57	15,575,166.44	7,222,369.13
1914	23,837,127.08	15,891,980.15	7,945,146.93

Some details as to the traffic in cereals over the Chinese Eastern Railway also have recently been made available and show that the amount of produce carried by the Chinese Eastern Railway during 1915 totalled 32,096,288 pouds, beating the previous record of 26,000,000 pouds for the season 1911-1912 by more than 6,000,000 pouds. It is noticed from the past experience that the European War has had only an inconsiderable effect on the transportation of export produce by the Railway. Statistics for the last season compare with those for the preceding one as follows:—

	1913-1914	1914-1915
Booked to Vladivostok.		
	Pouds	Pouds
Beans..	24,039,935	23,032,102
Other cereals	2,127,974	4,192,959
Transferred to S. M. Railway		
	Pouds	Pouds
Beans..	413,694	6,544,354
Other cereals	1,720,251	2,667,449

The 1914 report goes into still further details as to the diverse character of the traffic in agricultural products in the region traversed by this railway. The 1914 production seggregated under the chief areas of origin is as follows:

	via Pograni-chnaya pouds	via Man-chouli pouds	via Kwan-chengtzu pouds	Total pouds
Wheat	2,992,80	34,300	762,000	3,789,170
Oats	170,900	37,200	200	208,461
Millet	464,800	200	300	465,440
Kaoliang	61,300	13,100	13,300	87,865
Buckwheat	105,110	—	9,300	164,458
Barley	69,600	1,000	10,600	81,290
Maize	86,600	—	1,600	88,318
Sweet peas	22,900	3,600	—	33,554
Beans	17,179,000	13,700	1,869,200	19,061,900
Flour	73,500	8,800	700,100	782,587
Wheat bran	36,000	800	—	36,888
Bean Cake	1,488,000	—	20,200	1,508,345
Seeds	508,500	5,500	3,800	517,915
Sundries	2,100	2,300	1,300	5,789
Total	23,311,700	90,500	3,392,300	26,825,140

CHINA REVERTS TO REPUBLICANISM

Factional Struggles for Power

The appointment of what is called a "responsible" cabinet under the Premiership of General Tuan Chi-jui, as announced in the last issue of the FAR EASTERN REVIEW, gave satisfaction to the North, but was received with disapproval by the Independent Provinces. They demanded the retirement of Yuan Shih-kai and were not ready to consider any step calculated to retain the man whom they regard as their arch-enemy in a position of power. There was, however, nothing in the shape of a policy given out by the new Cabinet which could be construed as an intention to retain Yuan Shih-kai in the Presidency. On the contrary the Premier, in an interview with the Editor of the FAR EASTERN REVIEW, plainly stated that the matter of the Presidency would be left entirely to a new Parliament to be called somewhere about July. In reply to a definite question as to the powers of the Cabinet and the possibility of interference by the President, it was stated that not only was the Cabinet the master of its own actions, but that President Yuan Shih-kai would not attend any of the meetings. The Premier also stated that the control of the army had been relinquished by Yuan Shih-kai and that no matters would be referred to him unless they were of great national moment and then only for discussion. The President also declared to the editor of this paper that he had handed over all power to the Cabinet, and stated when questioned as to the actual control of the army, that the Parliament and the Cabinet would be the ones ultimately to decide that point.

Similar declarations were publicly made but they were received with the utmost scepticism by the South, the accusation being made that the new Cabinet was but a perpetuation of the old regime under a different cloak. This allegation was founded, of course, on the fact that financial control still remained under the direction of Mr. Liang Shih-yi, without whom, the Premier asserted to various foreign ministers, it was impossible for him, or any one else, to proceed.

Through different mediums Yuan Shih-kai let it become known that he was ready to retire when arrangements could be made, and when a Parliament had been constituted which could take charge of Government affairs, but no confidence was placed in any statements of this kind, lacking as they did the support of an outright public declaration. It was contended that no public announcement of this nature could be made by Yuan Shih-kai for the reason that certain military forces were almost sure to express their disapproval in methods not calculated to make for peace and harmony and happiness in the Capital, to say nothing of other large Northern cities. In other words it was feared should it be known to these certain forces that their old founder was being displaced, that they would begin an orgie of looting which might lead to burning and killing. Could it have been possible for Yuan Shih-kai publicly to announce his readiness to retire the chief difficulty with regard to a settlement between the various provinces would have been removed. The uncertainty had disturbing effects throughout the country and constituted a fertile source for all manner of rumours.

Telegrams and letters from various provinces and people were received in Peking urging Yuan Shih-kai to retire. Among these was one from Mr. Chang Chien, Ex-Minister of Commerce, Agriculture and Industry, and one of the "four friends" of the President.

Dr. Wu Ting-fang Speaks

Another was from Dr. Wu Ting-fang, who it will be remembered, figured largely in the 1911 Revolution. His letter was a lengthy one, but the substance of his contention is as follows:—

(1) The prospect of restoring peace by means of military strength is a very doubtful one. The prolongation of the struggle may give rise to International complications which may again result in the long-feared disruption of the country. In the latter event, Yuan would be alone to blame in spite of his claim to have acted according to his sense of patriotism.

(2) The leaders such as Tsai Ao, Liang Chih-chao and Tang Chi-yao of the anti-monarchical risings in the provinces, are sincerely desirous of political reforms and, being all men of unimpeachable reputation, are not bent upon self-interest as common rebels and robbers are. The policy "Fight to the last" may be criticized by International public opinion.

(3) War has always caused suffering and misery from time immemorial to the people of both sides. Why should a man, who loves the people as Yuan does, be so obstinate as to sacrifice tens of thousands of lives and tens of millions worth of property simply in order to uphold his own opinion?

(4) The wholesale emigration of people to foreign settlements and other places tells eloquently the pitiful plight in which they are put. The merchants have their business calculations upset. This condition of affairs will, if not soon amended, very likely cause universal dissatisfaction amongst both Chinese and foreign merchants. Yuan should bring himself to understand that all these evil consequences have been caused simply and solely by his unbridled ambition.

(5) To resort to military force, supplies of munitions, money and men must be maintained. The European War precludes the possibility of purchasing arms from abroad, while the capacity of manufacturing them at home is very limited and the reserves now held will soon become exhausted. The same handicaps may apply to the question of funds as regards foreign countries while few Chinese would care to subscribe to any Home Loan at the present time of crisis. As to "men," since the heart of the people is already quite alienated, the heart of the soldier will also become disaffected.

(6) Even assuming that a military campaign may lead to results gratifying to the Government, the people will then only fear but never love their rulers. They may even express contempt for power acquired in this manner. The loss of the people's affection would soon be followed by an aggressive and insolent attitude on the part of foreign countries. Orders would be ignored, and what relish would there be then in pursuing such a policy?

(7) When more provinces had risen against the Government, and when the clamour of the whole nation for the President to abdicate had become louder and more irresistible, the President would lose yet more "face" then. Better devise a more dignified way to retire at once. There is always a time for the actor to exit. Why not now?

(8) As regards any fear that no qualified person will be available to succeed the President, this fear is misplaced. The Provisional Constitution stipulates that the Vice-President shall act as President when the President vacates his office. Vice-President Li Yuan-hung, who was the first man who rendered meritorious services to the Republic, and whose kind heart and upright character have won the respect of all, will be gladly acclaimed President by all.

(9) "Your Excellency had been viceroy in the provinces and Grand Councillor in Peking during the Manchu *regime* at the end of which a dukedom was conferred upon you. Upon the inauguration of the Republic you were elected President; you have also reached the exalted position of an emperor, creating a title of your Imperial Reign. What more do you want, having reached the climax of nobility? Now, you have cancelled the monarchy and reassumed the office of President, just as a Minister of State was reduced to a Vice-Minister or a Viceroy to a Taotai. What relish do you find in climbing down from a post of honour and in occupying a humble seat?"

(10) As Yuan has devoted himself to the service of the State for several decades, until now when his hair has turned gray, he should deem it time to have a good rest. He may either enjoy the happiness of a country life or elect to make a tour throughout the world to study the politics obtaining abroad upon his retirement, and in consideration of his improved knowledge in politics, the people may again elect him their Great President, who knows?

Statement by Tsen Chun-hsuan

Tsen Chun-hsuan, who is regarded as one of the foremost of the southern leaders, also published a statement. He is an inveterate enemy of Yuan Shih-kai, and for that reason more than any other is to be regarded as uncompromising in his attitude when the question of a settlement is under discussion. His statement is as follows:

I, Tsen Chun-hsuan, do hereby make the following statement to the Military and Civil Governors of the Provinces and to the rest of my fellow-countrymen, young and old:—

I have remained silent as a political refugee for three years, during which period I have not had the opportunity of expressing my long-cherished principles. The time has now arrived when I can remain silent no longer. Being frank by nature, I can only say what I mean, though I may not always see what is right. If what comes from the bottom of my heart is wrong, I hope you will rectify it, otherwise I hope you will believe it.

I am opposed to Yuan Shih-kai, not for the purpose of vengence, nor to advance private interests, but solely to uphold the principles of justice and humanity which have been our national heritage for several thousand years. I was once a minister of the Manchu Dynasty. As Yuan Shih-kai betrayed the Manchu Dynasty, it is my bounden duty to bring him to justice on its behalf.

I am now a citizen of the Republic. As Yuan Shih-kai has attempted to overthrow the Republic, it is likewise my bounden duty to bring him to justice on behalf of the Republic. For these reasons, I have pledged myself to do what is in my power to mete out condign punishment to the national betrayer. If he is allowed to go unpunished, how precarious are the principles of justice and humanity! If the citizens do not fulfil their duties as citizens, how can the nation continue? Even were I to eke out my existence without any sense of shame, my descendants would degenerate little by little to the level of brutes. Is it said that I have the sinister motive of wreaking vengence? It is well-known that I have no animosity against Yuan Shih-kai. Is it said that I want to advance my private interests? I have still enough for my own subsistence and I am not one of those who slave that their descendants may be idle.

Is it said that I have the ambition of becoming a high official? I have had enough of official life, and only regret that I was not able to follow the example of the philosopher Ma Di in sacrificing everything for the benefit of society. Has the traitor paid the extreme penalty of the law? If not, then I am willing to lay down my own life. If he has, I shall be glad to lead the life of a private citizen. I will not attempt to refute the charges of lack of foresight and judgment, but to entertain suspicion of my motives is not only unfair to me, but savours of narrow-mindedness.

As I have said, I am not able to follow the example of Ma Di. Who, then, will bear the heavy responsibilities of state after the fall of Yuan? Concerning this question I shall say nothing beyond referring you to the Constitution. From the assassination of Sung Chao-jen to the time of Yuan's proclamation of himself as emperor, he repeatedly violated the Constitution. This has stirred the indignation of the entire people. It is therefore as important to uphold the Constitution which has been thus set aside as it is to overthrow the person who trampled upon it. He who, according to the constitution, has to assume the responsibilities of state, should not shirk them, though, by so doing, he may incur public censure and expose himself to considerable risk.

On the other hand, no person should compete for the office of President, even though this may lead to fame without endangering his personal safety. Our citizens have determined to sacrifice their lives in order to overthrow Yuan in his attempt to make himself emperor. If, hereafter, anybody dares to fight for his private interests, our citizens will, I am sure, overthrow him in the same manner as they have done the would-be emperor. I am not so foolish as to place private interests first. And though I may be daring enough to undertake difficult state affairs, I am not equal to the onerous duties of the chief magistrate of the nation; and I sincerely hope that our heroes and other patriots will not plan to make me the target of the nation.

What part shall I play after the fall of Yuan? If pressed to discharge the duty I owe the country, I shall, incapable as I am, willingly accept, as did Confucius, any subordinate role that may be assigned to me, provided the duties are not beyond my ability. Personal fame and honour are matters of indifference to me, Though not a man of wide knowledge, I have heard that in America the upper classes work as private citizens. If, therefore, the public leaves to me to follow my own inclinations, I will do whatever I can for the benefit of my native village in particular and of the country at large. For this, I need no official position, always, owing to the vicissitudes of politics, uncertain.

Moreover, the people are the all-important factor in a republic. The life of a private citizen is in no way inferior to that of a public man. When I said, "I have enough for my own subsistence," I was not deceiving myself; and when I said, "I have had enough of official life," I was speaking from my heartrending experiences. You need not be anxious about me, for if I reappear in public, I will harbour no inordinate ambitions; and if I retire into obscurity, I know how to abide by my own principles.

In conclusion, I may say that my only desire is to see that the national betrayer is dealt with according to law. If any one can work with me in upholding the principles of justice and humanity and fighting against the common foe, I will befriend him, respect him, and love him, even though he be my greatest enemy. But if any one should take the side of the betrayer, I will sever my connexion with him, even though he be my best friend or nearest kinsman.

It is in keeping with my nature to submit to what is right, and to fight against what is wrong. Ill-will must yield to reason, and everything must be subordinated to the common cause. Those who are on intimate terms with me will bear testimony to what I have announced as to my life principles. Even those who bear me malice will readily admit that I cannot be so cruel as to plot against the life of a man with whom I may be talking and laughing, or to order the execution of a guest in the midst of a banquet.

Our country is now in a most critical condition. I may have occasion to address you again; but as this is the first time that I have had the opportunity to do so since I left China, I do not dare to say more than what is necessary to express my principles. Hereafter I will give my opinions on current events. If you think I am wrong, do not hesitate to criticise me; but if you think I am not sincere, you do not know me at all.

General Feng-kuo-chang's Attitude

In our last issue we referred to the doubt which existed in connection with the attitude of General Feng Kuo-chang. Friends of the Independent Provinces believed that he was supporting them, and opinion in Peking was that he stoutly adhered to his old friend, Yuan Shih-kai. On April 26, he gave some indication of his feelings in a telegram to the President. The following is the translation given by the *Peking Daily News:*

Since the outbreak in Yunnan and Kueichow the revolutionary influence has spread to several provinces; and the general situation of the country has now become most critical. Many times I thought to express freely my opinion, but I did not venture to do so, for fear of incurring your displeasure. As danger has arrived from every direction, I cannot remain silent any longer.

For the past few years the Government has enforced energetically the policy of centralization of powers, and it has assumed full control of the local financial and military affairs. High provincial officials have been handicapped in every way, and they have not been able to effect any improvement in their respective provinces because they cannot do anything without interfering with the authority of the Central Government. The original provincial troops have been reduced again and again, disregarding the fact whether the remaining forces are sufficient to make good the local defence or not. In normal times peace and order might be maintained temporarily with difficulty but as soon as any trouble arises the Chiang Chun and Governors become most helpless as they have no control over the troops stationed in their provinces. It is well said that their authority is only confined to the provincial capitals where they are, and in the territory outside these capitals they can exercise no power. In the late Kuangtung trouble we notice that when Chaochow, Swatow, Chingchow and Lienchow declared independence successively, the provincial capital could do nothing to prevent what they were doing, but was finally compelled to follow their steps. Although we high provincial authorities have control over a certain portion of troops, we cannot predict whether they would be sufficient to cope with the situation or be willing to submit to our control. All the trouble and inconvenience have been the outcome of the policy of the centralization of powers.

So far peace and order have still been maintained in Kiangsu When the news of the declaration of independence in Chekiang reached this province the people were seized with consternation, and rumours of all sorts were rife. It was through our great and extraordinary efforts that the normal condition has been maintained so long, but if the present fundamental problems of the State are not solved in time the situation will become most hopeless. By the agitation of bad characters, thieves and robbers may arise from various districts, and the troops will be insufficient to suppress them. Revolutionaries may seize the opportunity to plot against the authorities, and the future is indeed exceedingly gloomy. I, Kuo-chang, who am responsible for the protection of this province, may become helpless to face such a grave situation. All I have described is only the condition of one province, but it will show the colossal task of the President to deal with the situation of the whole country. Since the outbreak of trouble one after another province has gone over to the other side, the people of the country have been seriously disturbed, troops of the Central Government have not shown any desire and enthusiasm to fight, and neither persuasion nor the military influence of the Central Government can effect any remedy for the present situation. However Your Excellency who has been endowed with extraordinary ability and experience, may be equal to the situation, and I hope that my fears and anxiety will after all prove to be unfounded.

As soon as the form of State was changed, troubles broke out from all directions, and it is unnecessary to affirm who have been the cause of the present disasters. The policy for the internal administration has been changed many times. All men of experience and ability of the former days have retired refusing to shoulder the responsibility of the State affairs, and Your Excellency is now surrounded by newcomers. Small military officers of the former days are all now promoted to the highest ranks and titles the Government could give, and there is nothing now to encourage them. Favours have been shown to flatterers, and men of uprightness and integrity have been suspected. Everybody feels the danger of incurring the displeasure of the authorities, and all have tried to

deceive them. When consulted on State affairs, no one has dared to express his true opinion. This is the reason that in the morning one sent in a petition urging Your Excellency to ascend the Throne, but in the afternoon raised an army to fight against the Central Government. There is none that has out of his heart given Your Excellency his support from the beginning to end. It is true that the troops in the Metropolis and the Commanders in the front are faithful to Your Excellency, but their strength has dwindled from day to day. Still no one can tell that these faithful few are really supporting the cause of Your Excellency.

When the expedition was first sent out all the Northern troops fought for the Imperial Cause, and after the monarchy was cancelled the North has lost its pretext for the war. Now both sides are republicans, and should the troops in front understand that they have been fighting without a cause, they will not listen to the order of the Central Government. If no fundamental solution be arrived at immediately the heart of the people of this country will be alienated from the Central Government. The only course left for the President is to deal with the nation in sincerity. No troops should be sent to the provinces which have not yet severed their connection with the Central Government; and the armistice be faithfully kept sending no more troops to reinforce the front.

Curiously quite a different interpretation was placed upon General Feng's telegram by supporters of the South, and although the translation given above was denounced as incorrect, later developments seem to give conclusive proof that the other version, which claimed that Feng had urged the retirement of Yuan Shih-kai, was incorrect. To this telegram the President sent the following reply:

The policy of Centralization of Power was copied from our Eastern Neighbour; but it has not been properly enforced, hence the great failure. However we must now change our policy to that which is more suitable for the circumstances of this nation. If the said Chiang Chun has any suggestion to make the Central Government is ready to follow his advice. We have deeply appreciated his advice to beware of flatterers, promote the experienced and able, exercise care in conferring titles and ranks, and deal with the nation in sincerity. For the past few days Hsu Shih-chang, the Secretary of State, Tuan Chi-jui and all other Ministers of State have been holding conferences to decide the best means for the formation of the Government and to draw up regulations for the organization of a responsible Cabinet. Thus the foundation of a responsible Cabinet has been laid, and at the same time we have been devising means for the revival of the National and Provincial Assemblies, the introduction of the Self Government System, etc. These are the fundamental solution of the present problems of the State, and by their enforcement reforms will no doubt be effected. We are glad to learn that the said Chiang Chun has done his best to maintain peace and order of his province. It is hoped that he will consult with other provinces regarding the peaceful settlement of the present situation. At this critical juncture it is imperative that all should abandon their differences and act unitedly to effect the salvation of the nation. We heartily accept the faithful advice, and repent of the past errors.

Knowledge of the exact attitude of Feng Kuo-chang was naturally of the utmost importance both to the South and the North. He stood as commander of the foremost province on the Yangtze—Kiangsu province—and also his connections with the army were of the strongest. If the Independent Provinces could secure his co-operation it was felt that the North must collapse, and likewise the North considered its salvation to be in the retention of the allegiance of the Yangtze Provinces, which virtually were in the hands of General Feng. Emissaries of both sides constantly belaboured him with proposals, and it ultimately became manifest that he had no desire to make any definite commitment, he probably feeling like the famous swain that he could be happy with either were the other dear charmer away. General Feng undoubtedly played for a long time with both sides.

A Set of Peace Terms

Constant talk of peace negotiations filled the air but nothing complete emanated from either side. The South made no overtures as a united body subsequent to the cancellation of the monarchy and this was ascribed to the fact that unity was impossible, there being considerable dissension between the factions in Kwangtung Province. However, towards the end of April it was reported that Eight Demands for a settlement had been submitted, in connection with which the following statement was published in the *Peking Daily News*:

Being very sincere in its desire to effect a peaceful solution the Government has recently organised two conferences under the respective names of Kuo-shih-ping-pan-hui and Kou-ho-cheng-pai-chu for the study and discussion of the demands lodged by the independent provinces. The progress of their discussion and the contents of the eight demands are in brief as under:—

1.—The retirement of the President from his present post. (This is said to be too grave a question to be decided by either of the two parties, it should be submitted to the formal National Assembly, when organised, for decision).

2.—The renewal of the Provisional Constitutional Compact of the First Year of Ming Kuo. (This will be agreed upon by the Government, since there is not much difference between the provisional Constitutional Compact and the formal Constitutional Compact. It should, however, be left to the decision of the National Assembly, as it is the law of the country).

3.—The organisation of a responsible Cabinet. (This demand has been complied with by the Government by the issuance of the Mandate on the 21st instant dealing with the reform and organisation of a responsible government).

4.—The convocation of the National Assembly. (This demand is not objected to by the Government, since it is an organ representing the will of the people).

5.—The introduction of local self-government. (This demand will be accepted by the Government, as it identifies the intention of the President, who appointed Wang Ta, during last year, as the Director for the introduction of the model self-government in the Peking Prefecture in order to extend the same all over the Country).

6.—The Restriction of the military power of the Chief Executive. (By the inauguration of a responsible Cabinet, it is but natural that the military power of the President be handed over to the former).

7.—A general pardon for the rebels. (This question is still under discussion).

8.—Severe punishment for the originators of the monarchical movement. (This question is still under discussion by the Government).

General Tsai Ao Urges Retirement of Yuan

The efforts made by General Tsai Ao, the leader of the Yunnanese troops, who instituted the campaign of independence, and General Chen Yi, the Governor of Szechuan, to devise a basis for compromise developed into a proposal, submitted by General Chen Yi to Peking, for the retirement of Yuan Shih-kai, the message emanating, ostensibly, from General Tsai Ao. It was (*Peking Gazette* translation) in the following terms:

Following the cancellation of the monarchy, Er-an [Chen Yi's *hao*] despatched a delegate to me with peace proposals for discussion. The first proposal related to the retention of Yuan Hsiang-cheng [Hsiang-cheng is the name of the Chief Executive's native city] in the office of President subject to certain sefeguards intended to prevent a recurrence of the monarchical movement and at the same time to avert the dangers of the moment and to reach a settlement for the maintenance of the general situation. I am conscious of the genuineness of all the efforts made in this connexion; and while the present situation of the country is assuredly precarious, we are not of the class of men that will pour oil on the fire if peace and rest can be vouchsafed the people by any compromise. The subject now under discussion is of such a momentous nature that it must be subjected to the fullest consideration.

From the point of view of law, Hsiang-cheng deliberately nullified the validity of the action of the National Assembly which elected him to the office of President, when in accepting the throne, he issued a mandate practically renouncing his office as President. It is therefore legally impossible for him to reoccupy again his former position. A self-appointed President is a phenomenon that is unknown in history; and if this point of illegality be allowed to go unchallenged, what sort of statecraft will be left to China? From the standpoint of conduct, we find that Hsiang-cheng has been unable to restrain himself whilst acting as President and lacking in firmness when he accepted the throne. When it is remembered that he has thrice changed his attitude within the brief space of a few months, what credit can be given him for dignity and moral responsibility? In these circumstances it will be impossible for Hsiang-cheng to reassure the people and regain their confidence even if he were to swear by Heaven and Sun that he would be faithful in the future to his promises as President of China. For obvious reasons, it is proper that safeguards should be exacted. But where would national dignity be in the case of a settlement that would result in our suspecting and guarding against one another like people guarding against robbers and thieves? It would be impossible under such circumstances for the Government to exercise authority in future. The continuation of Hsiang-cheng as President is therefore an impossibility.

We understand that the advice of the five Powers in connexion with the monarchical movement was presented to our Government at the instance of Japan. As the monarchy is now cancelled, Japan is boasting that her advice has yielded her a victory; and at the same time her derision of Yuan has increased in intensity. The Japanese are presently expressing the view that, inasmuch as Yuan

has disturbed the peace of the Far East by suddenly becoming emperor and suddenly going back to his position as President, Japan would have to intervene if Yuan should again be recognised as President. The relations between Hsiang-cheng and Japan have been anything but friendly; and the unnecessary disturbances caused by the action of Yuan have given them a fresh excuse. Japan is known to have always been watching and looking for the opportunity which has now been given her. In what way shall we deal with Japan if she should intervene in our internal affairs in case Yuan is recognised President at a time when Great Britain, France and other countries are unable to restrain her? The continuance of Hsiang-cheng as President is therefore impossible even from the point of view of diplomatic difficulties.

When the proposals of Er-an were forwarded to Yunnan, Kueichow, Kuangsi, and Kuangtung for their views, the same were considered impossible and rejected. Prominent people within and without China have also been expressing themselves in words even more vigorous in tone. What then can be causing Hsiang-cheng to linger at his post when he knows that the indignation of the people has risen so greatly against him?

Responsible people all agree that Hsiang-cheng must retire, that the Vice-President should temporarily function in his stead in accordance with the provisions of the Provisional Constitution [not the "Goodnow Constitution" known as the Constitutional Compact], and that the National Assembly be again convened to hold another election. At the same time if Tung-hai [Hsu Shih-chang], Chih Lao [Tuan Chi-jui] and Hua Lao [Feng Kuo-chang] be placed in positions to assume the responsibility of the various departments of Government, there will be no difficulty whether the situation is regarded from the standpoint of legality or practicability.

Huang-Pi [Vice-President Li Yuan-hung], Tung-hai [Hsu Shih-chang], Chih Lao [Tuan Chi-jui] and Hua Lao [Feng Kuo-chang] are quite capable of doing properly whatever Hsiang-cheng can do and they do not labour under the disadvantage of being suspected by the people as Hsiang-cheng undoubtedly is. Viewed in this sense, we see that the retirement of Hsiang-cheng will at once cause all difficulties to vanish; indeed no act will prove as powerful for the elimination of internal trouble.

A mortal does not live for ever; and if a man of sixty can pacify the country by an act of retirement, what more can he wish to achieve? Besides, the qualities of modesty and meekness necessarily involved in such a course will not fail to arouse in future generations a sense of admiration; and, in this event, when the day comes to reckon the merits of past patriots, it is certain that Hsiang-cheng will be praised as the father of the Min Kuo.

If, however, Hsiang-cheng should continue to linger and delay to make a prompt decision in the sense of retirement and compel the people to elaborate their demand in plainer language, his retirement will be a compulsory instead of being a voluntary act and his high virtue will be lowered. If he should decide to retain his office by force of arms, then hostilities, which have been suspended on account of the truce, will be resumed for which the responsibility will be on him. The choice is before him. In the interests of the State as well as of Hsiang-cheng, we have to ask you, Gentlemen, to remonstrate with him in a united voice in order that he may not miss this last opportunity. Tsai Ao continues to appreciate Hsiang-cheng's friendly sentiments towards him; and what he now seeks to express in words at once plain and intimate is intended for the benefit of the country and in the sense of a return for personal kindness. You, Gentlemen, are besought to give due consideration to my humble views.

On April 22 and 23 disturbances broke out in Kiangsu Province at Wusieh, on the Shanghai-Nanking Railway, between government troops and rebels from the Kiangyin forts, on the Yangtsze River, some 30 miles from Wusieh, who had previously declared "independence." The rebels were driven off, though they cut the railway and caused a suspension of traffic between Shanghai and Nanking for a day or two. Kiangyin fort was later recaptured and the rebels were dispersed.

Fighting also took place in Kwangtung Province near Kongmoon between troops under the command of the "independent" Governor of Kwangtung, General Lung, and so-called rebels, a faction opposed to the one in power. The "rebels" were defeated. This was merely one further illustration of the difficulties confronting the leaders in the southern Provinces.

April closed with actual factional fighting suppressed.

The Governor of Chekiang

In Chekiang Province there was dissatisfaction with the attitude of the "independent" Tutuh, Chu Yen-kwang. He was accused of being only half-heartedly "independent," and certainly his demeanour gave justification for the suspicion. In an endeavour to reassure the advocates of independence he telegraphed Peking as follows, according to a *Peking Daily News* translation:

The independence declared by the provincial capital here has been unanimously supported by the people of all districts in the province. In the afternoon of the same day of the declaration I was obliged to take over the affairs of the province at the earnest request of the high civil and military officials, and local gentry, although I was perfectly convinced that my ability was not equal to the occasion, or up to the expectation of the people of the province. However, I was aware of the seriousness of the situation of our country, and I did not therefore hesitate to take over the responsibility. I must point out that the steps taken by the people of this province are without any mean motives. The various classes of people have a common desire to see peace and prosperity returning to this nation, so that further troubles and disasters may be averted.

The independents do not seek for wealth and power, nor any personal interest, and they have a proper object in view, quite different from the actions of those violent and rash characters. Consequently after obtaining the success, all promoters of the independence have returned to their former posts of occupations. Troops have returned to the places from which they came, and the people have again settled down as heretofore. Peace and order have been maintained as usual without causing any disturbance. I therefore affirm that the people and troops of Chekiang are really patriotic and have devoted their whole attention to the furtherance of the interest of the nation; and their patriotism may be easily observed by both the people of this and other countries.

The influence of revolution has spread, and it seems that one province after another would in course of time declare its seccession from the Central Government. It will be serious if some false steps should be taken. The object of the declaration of independence is the re-union at the end, otherwise the present steps will be a serious blunder and failure. It is important that the work of destruction should precede the work of construction, but the delay of constructive work will cause great misery to the people. Therefore, the remedy should be applied in time lest it be too late to effect the salvation of the nation. I believe all the provinces which have either declared or not yet declared independence will share the same idea with me, and feel the same responsibility.

The only means to effect the salvation of this nation is to shorten the period of quarrel, and proceed to the root of the trouble at once with the view of effecting a rapid solution. The point for us to settle now is whether the Chief Executive will abdicate or not. They have been so absorbed by this important problem that they have neglected to consider the procedure to be adopted in connection with the act of abdication. As both sides do not like to yield, fighting can not cease, and the innocent people have suffered and will suffer untold misery on account of the war. It is easy to read the mind of the people of the country under the present circumstances. We have noticed that Mr. "Hsiang Cheng," (President Yuan) has cancelled the monarchy, is willing to part with the crown which was within his reach, therefore we believe that he will not remain in a nominal Presidential post to bring woe and affliction to the people. Moreover, in view of the present critical situation, there is not much to be enjoyed by occupying the post of President of this country. The responsibility of President is exceedingly great, and he cannot enjoy himself as if he were in a time of peace and prosperity. He would no doubt prefer to retire and to seek pleasure at his countryside in fishing and other delightful pastimes. Under the present circumstances there is no doubt that he would be pleased to retire. But if the South should force him too hard, it would oblige him to resort to means for his own protection. On the other hand if too strong support be given him it would do him more harm.

I, Yen-kuang, am of opinion that the first step should be to cease all hostility, so that the people will gain a little respite. Secondly, both sides should at once appoint representatives to organize a conference for the discussion of the terms of abdication. Thirdly, all the great problems of construction should at once be discussed. All the provinces which have either declared independence or not, should at this time combine themselves together in a right and patriotic spirit to devise means for the salvation of the nation in accordance with right principle and the present circumstances of the country. I should further suggest that a few provinces be nominated to consider and decide the measures to be adopted by the country, and after having made their decisions they should promulgate the same, thus no time will be lost.

The effect was not as desired by General Chu, and the leaders of the "independence" movement in Chekiang quickly assembled and voted him out of office, appointing an active officer of the Chekiang forces in his stead.

The province of Heilungkiang, in Manchuria, declared what the Southerners described as "loyal independence"—"independent though loyal to Peking."

On May 3, a serious development took place at Tsinanfu, the capital of Shantung, the province from which the Japanese ousted the Germans as a result of the capture of the German colony of Tsingtau. Bombs were thrown, it is alleged by Japanese, and while no great damage was done to property, considerable panic was caused, and definite evidence was given of

the active interest of certain Japanese in the movement to upset the Central Government.

More significant, however, was the extraordinary conduct of Japanese military authorities explained by the *Peking Daily News* as follows: "At Weihsien (Shantung), there is a division of loyal troops under General Chang. On the evening of May 4 a force of close upon 1,000 armed men, clad in a kind of grey uniform were brought by the Japanese controlled railway to Weihsien. The gates of the city were closed, but the rebels started firing and made an assault, which was easily repulsed. Another couple of hundred of the uniformed rebels were brought to Weihsien by the railway on May 5 and in the evening a company of Japanese soldiers, under the command of a Japanese officer named Ishu Oura, arrived and expressed a wish to parley with the loyalists. General Chang sent the magistrate of the city to ascertain what the Japanese officer wanted. The latter presented two demands, (1) That General Chang should declare independence and arrange terms with Chu Cheng and (2) That the city should be surrendered and that General Chang's troops should leave. Of course these demands were not acceded to. The city magistrate was not allowed to return to the city. Pillaging is being carried on at Fangtze and Chowtsun by rebels who were taken thither on the Japanese railway."

A formal protest against such outrages as these was lodged by the Chinese Government with the Japanese Government, but the latter received the protest with the declaration that they had no information in connexion with the matter. Independent evidence is available that the Japanese have been conspicuously active in creating disturbances in Shantung, and this is particularly regrettable in view of the fact that Japan labors industriously to try and prove to foreign Powers that she is bent upon nothing but the maintenance of peace in Asia in general and the integrity of China in particular.

The Legality of Yuan's Position

On May 8 the new Minister of the Interior, Mr. Wang Yi-tang, issued a Ministerial Order, giving his interpretation of the law with regard to the standing of the President. The order (*Peking Gazette* translation) was as follows:

The general public is hereby notified that while confused discussions are capable of upsetting sound principles and representing white as black, mistakes made by misinterpreting the meaning of law are doubly liable to disturb the minds of the people and misrepresent actual facts. It is feared that unless prompt correction be made, mistakes will beget mistakes and the eyes and ears of the people may thereby be unduly influenced, resulting in the disturbance of local peace and order. This Ministry, in control of all internal affairs, is immediately responsible for the protection of the people and the maintenance of order. A perusal of the articles and telegrams published in the newspapers shows that discussions in the connexion are mostly partial. Some say the title "Great President" should have disappeared upon the establishment of the monarchy, while others argue that the existence of the Min Kuo was interrupted on the day the Convention of the Representatives of the Citizens decided to adopt a constitutional monarchy. These arguments are nothing but a miscellaneous collection of partial views gathered for the purpose of supporting certain views. They are neither facts nor sound theory in the eyes of the law. We fear that misunderstanding will arise if they be allowed to pass uncorrected.

It must be remembered that it was a foreign official of the Government [Dr. Goodnow] who raised the question of monarchy by writing an article on the subject; and Chinese scholars studied and discussed the subject afterwards. The Chou An Hui was started because our people and scholars, deeply struck by the danger of internal warfare which continued for over ten (*sic*) years in Mexico, which had five different Presidents at one time, were convinced that nothing else could avail but to discuss the question of Kuo-ti. The people of the provinces and administrative areas poured in telegram after telegram, when they heard of the movement, asking that the *Kuo-ti* be changed. All the civil and military officials then also sent in telegrams of approval; and thus the voice of the country was unanimous. Owing to the position he then occupied, however, the Great President, who was responsible for maintaining the then existing form of State, made repeated declarations and issued a mandate in which he openly declared that the change of Kuo-ti was inadvisable having regard to the tendency of the time. The Convention of the Representatives of the Citizens, on the other hand, unanimously decided to adopt the constitutional monarchy system and also designated the Great President as emperor.

From the view point of law this was not an attempt to destroy the Min Kuo and then to elect an emperor. Rather it was an act to prepare for the formation of an empire and election in advance of the then Great President as the future emperor. As the empire was not actually formed and the emperor never actually ascended the throne, the continuance of the Min Kuo was never interrupted. Consequently the position of the Great President was never altered. This, we assert, is without doubt correct.

A mandate was issued on the 11th of the 12th month of the 4th year of Min Kuo, stating, "I shall, in my original capacity and name and with my original authority and power, maintain the existing conditions." Is not the "original name" the name "Great President," and the "original authority and power" the authority and power of the Great President? Were not the "then existing conditions" the conditions of the Min Kuo? It must also be remembered that the Great President from the beginning to the end never issued any mandate in the name of an emperor; and the term "Ti Kuo" (Empire) never appeared in any of the documents and the telegrams. This is an unquestionable proof that the empire never came into existence. And as the empire never came into existence, the continuance of the Min Kuo has never been interrupted. Consequently the Great President never for a day vacated his position as the Great President.

This is not all. When the people of the whole country repeatedly begged the Great President to ascend the throne, the latter always firmly declined. Internally he ordered the postponement of the drafting of the constitution of the monarchy, and externally he declared to the foreign powers that the establishment of the monarchy would be postponed. Indeed the Bureau for the Preparation of the Grand Ceremony was established, but this was done in order to humour the people who were clamouring for the coronation and not to prepare for the actual coronation. If it is claimed that the existence of the Min Kuo was interrupted without the empire being established, then we must also accept the theory that China ceased to have a formal government on the day the Convention of the Representatives of the Citizens decided to adopt a constitutional monarchy. We are all aware, however, that the Chung Hua Min Kuo has held unbroken diplomatic relations with the treaty nations right up to this day without interruption; and the formal intercourse between the Great President and the heads of the foreign countries has been maintained up to this day. If the fact is to be denied that the Min Kuo and the Great President were in existence during this period, then are we ready to allow the views of a small number of people to raise the important question of formal intercourse between China and the foreign countries during the same period? Is it not a reckless thing to suggest that we were once without a government even before foreigners have said so?

The change of the *Kuo ti* was brought about first by the petition of the people and then by the demand of the civil and military officials of the provinces. This can be ascertained by examining the telegrams and documents still on file. Since the petitioners based their plea on the strengthening of the foundation of the country and since their acts were always guided by law, they cannot be governed by the common law. If they are to be bound by the limits of law then all those who petitioned for the establishment of the monarchy as well as all the superior officials should be held responsible. This is very plain and therefore needs no argument. At this time when opinions are numerous and rights and wrongs confused, our citizens should be united in heart and effort for the maintenance of the situation. They should not give ear lightly to rumours or be influenced by incitement, otherwise they will be endangering the country and throwing the people into devastation, in which case they will repent when it is too late. For the purpose of protecting the people and maintaining peace and order we feel that we are in duty bound to issue this advice in a clear and detailed manner. Let the myriads of people be one in mind in upholding the right principles. By protecting the country you will be protecting your homes; and so if you wish to love yourself love the country first. Of this, this Ministry has great hopes. Thus do we order.

Feng Kuo-chang's Definite Policy

During the early part of May steps were taken to marshal the loyal provinces with the object of commanding a declaration of terms from the five "Independent" Provinces of the South; namely, Yunnan, Kweichow, Kwangsi, Kwangtung and Chekiang. These steps led to an unmistakable pronouncement of the attitude of General Feng Kuo-chang which was very disconcerting to Southern leaders. He, personally, brought matters to a head by visiting General Ni Shih-chung at Pengpu, and urged co-operation with General Chang Hsun, at Hsu Chow Fu, with the object of bringing the various provinces into line. General Ni Shih-chung accompanied General Feng Kuo-chang to Hsu Chow Fu, and, as a result they dispatched the following circular telegram to the Provinces, urging that delegates be dispatched with full power to meet at Nanking to discuss terms of peace.

We, Feng Kuo-chang and Ni Shih-chung arrived at Hsuchowfu to-day and have had a conference with Chang Hsun. As a result we agreed to dispatch the following circular telegram to the provinces:

"Several months have elapsed since fighting commenced on the Szechuan borders. Notwithstanding the fact that many proposals have been made for a peaceful settlement, yet no proper solution of the question at issue has so far been found. This may be attributed to differences of views held by different provinces. But it should be remembered that at the present critical moment, the extinction of the nation is hourly threatened. The different localities are rife with signs of unrest and disturbance and foreign aggression is daily expected. Under such circumstances, the Central Government has become powerless in regard to the settlement of the question, while each province holds itself out and insists on its own views. Rumours have become so plentiful that it has been difficult to understand the real situation of the country. Yunnan, Kueichow and other provinces have made excessive demands, which are ever-increasing. If such a deplorable state of affairs be allowed to continue, we can hardly foretell the danger and trouble which will befall this country.

"Being greatly concerned with this, I, Feng Kuo-chang, have, according to my limited views, proposed eight conditions as terms of peace, which have been communicated to you in a circular telegram dated the 1st inst, and I presume the same have already been brought to your notice. But in view of the importance of this event, which will affect the future destiny of the country to no small degree, I deem it neither convenient nor proper to discuss the question by telegraph. For this reason I personally went to Hsuchowfu on the 5th inst. to discuss the matter with Chang Hsun. When I was passing Pengpu, I asked Ni Shih-chung to accompany me.

"We arived at Hsuchowfu this morning. After a thorough discussion, we resolved that in view of the present situation of the country, which is full of perilous possibilities, we, having appointed ourselves as peacemakers, must first of all unite together into a solid body, before we can expect to advance our purpose. In this way our words will be considered as impartial and we can insist upon the settlement of the question. If we fail to do this, we shall allow the present state of affairs to continue until matters go to such extremes that they will be beyond remedy. We hereby telegraph to you for your wise counsel on the subject and request you to depute a delegate with full power to meet with delegates of other provinces at Nanking on the 15th inst., when we shall advance our purpose. We believe that only in this way we can avoid disagreement and will be able to push the matter to a definite conclusion. We, Chang Hsun and others, have taken the question into mature consideration and find our views in accord with one another. For the sake of the Central Government and the country we can adopt no measure other than this. We hope you will telegraph us your wise counsel on the subject and inform us of the name of the delegate you intend to despatch to us. Thus we shall hope to act upon your instructions as far as possible."

Having despatched the above telegram to the provinces, we hereby beg to bring it to the notice of Your Excellencies.

Several replies having been received to this telegram, a further message was sent by General Feng to the various authorities of the seventeen loyal provinces. The telegram (*Peking Gazette* translation) was as follows:

In acknowledging receipt of your esteemed replies to my telegraphic inquiry I beg to take the opportunity to thank you for your support of my views, which has stirred my admiration for your public spirit and loyalty in no small degree. The present situation in China is like a bunch of tangled silk. As it is impossible to solve the question by force of arms, a peaceful remedy should be found without delay. The 8 articles named in my *Chiao* telegram [sent in "elucidation" of the telegram which we published on April 26] were merely general outlines for discussion. The provinces of Yunnan, Kueichow and others have, however, persistently demanded that article 1 should be struck out [this article deals with the retention of the present Chief Executive]. On the other hand we should proceed in strict accordance with law if a solution of the difficult question is to be found, in order that the opposing parties may not insist on their own extreme views and thus give an opportunity to our ever watchful foe to intervene. Still basing my opining on the original proposal, I beg now to put forward new suggestions, which I have prepared after considering the various phases, for your criticism.

The first question is the position of the Great President. Great President Yuan first organised the Republican Government under the power entrusted to him by the late Tsing House, and thus became the ruler of the Min Kuo. His position in the process has been clear and definite. On account of the monarchist movement, however, events have taken a reverse turn. Indeed, the monarchy has been cancelled; but the view of the critics is that the existence of the Min Kuo was interrupted in the middle and that the original position of the Great President has been cancelled. It is therefore impossible to recognise his position again. This conclusion is reasonable. But if we are to discuss the question from the legal standpoint we are forced to the conclusion that not only the position of the Great President but also that of the Vice-President ended since after the 4th year of Min Kuo (*sic*) China therefore has been a country without a government or law. [It is understood that Premier Tuan Chi-jui has repudiated this nonsensical view in a reply to Feng Kuo-chang.] It is an unsound theory to suggest that the Vice-President should function in the place of the Great President, even basing the argument on the Provisional Constitution.

In order to maintain the Republic the administration should be improved; and if the task of reforming the administration cannot be expected of Great President Yuan, the only alternative is to elect another President. In order to elect another President it will be necessary to convene the Parliament; and in order to convene Parliament some one must issue a mandate calling on the members to assemble. The proposal to place the Vice-President in the position of the President and authorise him to function as such, as has been made by some one according to the provisions of the Provisional Constitution, is contrary to actual facts (*sic*). It would therefore be better to base our decision on the view that the Great President has been entrusted with power by the Tsing dynasty and has therefore the duty of temporarily maintaining the general situation. At the same time the position of the Vice-President should be revived and he should be compelled to assume office so that the inadequacy of the law may be remedied (*sic*). Meantime a method should be devised for the speedy convocation of Parliament, and the Great President should issue a mandate in advance to the effect that he would resign as soon as Parliament is convened. In this manner the future President may be duly elected in accordance with law, a responsible cabinet actually organised, a new Government formed, and many other affairs attended to one by one. Like the "veins" of a tree the source of life begins from the root and extends to the many branches. So by going about the matter in an orderly and systematic way a firm and solid foundation will be laid and the danger of emphasising the unimportant may be avoided.

The next thing is the question of the Parliament. From what I have already mentioned above, the election and convocation of a Parliament are seen to be steps of immediate importance. While it is to be recognised that the process of election is exceedingly complicated and difficult, undue delay of the matter will not improbably cause dissatisfaction. We should therefore modify the law on the organisation of the Parliament and the election law with a view that the formation of the Parliament may be hastened to an early date. The date on which the Parliament is to assemble should be made definite so that the successor to the Presidency may be promptly decided. It will be necessary, however, to lay down strict rules for the election of members of Parliament. Precautions should be taken to guard against corruption; and those who resort to bribery for the purpose of securing a seat and the demagogues of political parties should be excluded so that the true wish of the people may be represented and the defects of a disorderly crowd avoided. We should take a lesson from our past experience in this respect.

Another question is the constitution. The constitution should be drawn up without delay upon the establishment of the Parliament in accordance with the proper process. By having a constitution the whole country will be able to direct their actions. Prior to the passage of the constitution, the act and decisions of the government should be guided by the Provisional Constitution promulgated in the first year of the Min Kuo, which shall serve as a general model. And since the said Provisional Constitution contains many provisions which are unsuitable to conditions in China or the general situation, only those which are practicable should be selected and promulgated for temporary observance. The same may even be modified with the view that they should be made absolutely practicable without the slightest defect. In short the utmost care should be exercised in the making of the constitution as it is the fundamental law on which the life of the country rests.

Then the question of finance. The finances at the present day have reached the limit of stringency. The national treasury is depleted and the last fish has been caught by drying the pond. We are in a situation where we do not know what is in store for us in the evening after passing the morning. The major portion of the expenditure has been due to the wastage caused by the internal war. Peace negotiations have been going on but the military expenses are as great as ever. Even if the reforms mentioned above be carried out according to programme, we shall be faced with the problem of reorganising the situation in the provinces of Yunnan and Kueichow which have been affected by war. Funds are therefore needed everywhere and immediate steps should be taken to make the necessary preparations. The Central Government should make a declaration on the policy of handling funds in future, while the provinces of Yunnan and Kueichow should state clearly how much will be needed to put the provinces in order again. First of all, the unnecessary affairs of the State should be stopped and means devised to distribute the funds equitably for all important purposes. If this should be found to be inadequate then foreign loans may be contracted. In the latter case, however, the application of the loan must be definitely declared and the same used for no other purpose.

A budget should be compiled and the evil of extravagance should be sincerely and effectively cured. Reform in this connexion should be energetically pushed so that the vitality of the nation may be restored and the premature death by starvation of the nation prevented.

Now as to the question of the Army. Peace negotiations have begun and the troops despatched by the Central Government to Szechuan, Hunan and other places have been ordered to cease fighting. Yunnan, Kueichow and other provinces should also strictly control their forces and order them to wait quietly for a peaceful settlement. They should not be allowed to break the truce and interrupt the peace negotiations. As soon as a settlement is reached troops shall be sent back to their original garrison stations. In order

to reduce expenditure, the new units recruited by both sides after the outbreak of war should be disbanded and the soldiers sent home with adequate remuneration. Hereafter all the military forces of the whole country should be organised on a universal system, named in the order of their formation and placed under the control of the Ministry of War so that the whole may be made one united body without any distinction of provincial boundary. As to the introduction of conscription, due consideration should first be given to the existing conditions, and General Staff and the Ministry of War should jointly consider the question on a broad basis.

The question of officials is another important one. The qualifications and standing of all military and civil officials as well as all those who serve the Min Kuo in any other capacity during the regime of the Min Kuo should continue to be valid. The Chiang Chuns and Governors of the [independent] four provinces should also continue in their offices. All official systems and rules now in force should be left alone for the time being in order to avoid confusion. Those parts which need revision should be left till after the establishment of Parliament, when they may be discussed. Others such as unemployed military officers, returned students from abroad, and graduates of schools in China who have not yet been given employment, should be given employment by the Government so that real talents may be utilised and their service not overlooked.

The principal offenders are another question. The question of monarchy was raised by Yang Tu and others. They were doubtless prompted at first by the desire to create a sensation in consequence of erroneous notions about scientific research. Unfortunately their mistaken views had the effect of inciting the minds of the people and creating a disturbed situation. War was finally declared, the vitality of the country undermined and the people thrown into utter misery. Their sins are so numerous that they cannot be numbered even by counting the hair on one's head. The present situation is, however, most precarious and we should place the question of saving the nation before everything else. It will not benefit the country in the least even if we expose the corpses of these offenders in the public market. They should, however, be deprived of their rights as citizens of the Republic and considered as outcasts of society. Their crimes may be announced and sentences passed on them after the establishment of the Parliament upon due trial by process of law so that the law of the nation may be eventually carried out and the hearts of the people appeased.

The question of party members. Numerous parties sprung up after the establishment of the Min Kuo, and their aims differed widely. While it should be admitted that some of them have seceded from the Government as the result of disagreement with the latter owing to patriotic reasons, there are nevertheless many who, for the purpose of selfish aggrandisement, have advocated a policy of obstruction and destruction. These have mixed themselves with real patriots by establishing a banner of their own. As actual evidence can be produced against them there is no need to conceal the fact. The Government should examine the original indictments and judge who are genuine rebels and who are not. The decision should then be submitted to Parliament and the approval of the latter should be secured before a general amnesty can be declared. In this way violation of law will be avoided and causes of future disagreement removed.

The above points embrace in a rough manner the general outline. Kuo-chang is of opinion, after taking into consideration the tendency of the time and the present state of affairs, that if the foundation of the future Government is to be consolidated. The question, however, should only be tackled with great caution and care, guiding every action by the principle of law so that we may not become a laughing-stock in the eyes of the world. This is the only method by which a settlement can be reached. You gentlemen, being capable of making great plans, can surely make good my defects. It is therefore sincerely hoped that you will give the question your careful and esteemed consideration with a view that the final proposals may be without fault. Should you decide to approve these suggestions I beg that you will favour me with a reply before the 6th, whereupon I shall draft a telegram to be sent to Yunnan, Kueichow and other provinces as well as to the Central Government which will be asked to forward the same to the provinces for your perusal. Eagerly awaiting your reply.

Southern Provinces form a Government

This exhaustive statement was naturally severely criticised by opponents of Northern politics, because it was construed to mean that Feng Kuo-chang desired to have Yuan Shih-kai retire so that he (Feng) might become President. The South have quite other ideas in that respect, and these were put in concrete shape by May 8 when the leaders managed finally to sink their differences and organize a government. They proclaimed the completion of the formal organization of the Southern independent provinces into a Central Government, with Canton as the Capital, and the appointment of General Li Yuan-hung as Great President and Commander-in-Chief of the army and navy. A War Cabinet was formed with Tang Chi-yao as Chief of the Military Council, and Tsen Chun-hsuan as Deputy-Chief. The following were elected members of the Council: Messrs. Liang Chi-chao, (Chief of the Administrative Department), Lu Yung-ting, Liu Hsien-shih, Lung Chi-kuang, Tsai-ao, Li Lieh-chun, and Chen Ping-kun. The following circular telegram was despatched to the various Provinces by the new "government:"

Since the President has forfeited his title and rights, we have in accordance with the provisions made in the Constitutional Compact declared Mr. Li Yuan-hung, Vice-Minister, as Acting President of the Chung Hua Min Kuo. Unfortunately as Mr. Li has not at present been able to enjoy personal liberty, he is unable to carry on the function of a President. According to the provisions made in the Constitutional Compact the Cabinet should carry on the function of a President if there is no Vice-President; but as the National Assembly has not yet been organized no Cabinet can be formed to attend to the affairs of the State. After careful consideration the authorities of Yunnan, Kueichow, Kuangsi and Kuangtung, not including Chekiang which has not yet given a reply to our inquiries owing to the interruption of communications, hereby declare that in order to carry on the function of the State, a military Government should be introduced to consolidate and unite the efforts of the independent provinces, etc.

The following is a set of Regulations governing the Workings of the Chun Wu Yuan (War Office) of the Southern Military Government, promulgated by the above mentioned telegram :—

Art. 1.—The Chun Wu Yuan (War Office) shall be under the direct control of the President of the Chung Hua Min Kuo, and it shall manage and direct military affairs of the whole country during the time of War and to attend to the reorganization of the administration after the war.

Art. 2.—Before the arrival of the President at the place where the Chun Wu Yuan is, all civil, military, internal and external affairs shall be administered in the name of this Yuan.

Art. 3.—In the Chun Wu Yuan there shall be appointed Fu Chun (High Military Councillors), who shall exercise the power of the Yuan by their unanimous decisions. The Tutuhs of the province, the Commander-in-Chief, or Chief of the Staff of two or more provinces, and the Commander of two or more Army Divisions shall act temporarily as Fu Chun of the Chun Wu Yuan. As soon as a person has acquired the above qualifications he will become a Fu Chun automatically, as the number of Fu Chun is not fixed.

Art. 4.—There shall be one Chief and one Vice-Chief Fu Chun elected from among all the Fu Chun to enforce the resolutions passed by the Fu Chun of the Yuan. The Vice-Chief shall assist the Chief to manage the affairs ot the Yuan, and if the latter be absent the former shall act for him, but if both of them should be absent, another acting Chief shall be elected.

Art. 5.—An Administrative Commission shall be established in the Yuan, and a Chairman shall be elected from among the Fu Chun. This Commission shall appoint various officials to manage the affairs in connection with Diplomacy, Finance, Army, Justice, etc.

Art. 6.—A Commission of Representatives of the Provinces shall be introduced in the Yuan, and each Tutuh shall appoint two representatives to attend the Commission and to answer all inquires made regarding provincial affairs.

Art. 7.—There shall be appointed a number of Secretaries who shall under the direction of the Chief and the Vice-Chief take charge of the important affairs of the Yuan.

Art. 8.—Whenever there are important or external affairs to be settled, Senior Clerks may be appointed at the decision of the meetings of Fu Chun to attend to the same.

Art. 9.—Detailed regulations governing the Working of the Commissions, etc., shall be fixed separately by the Order of the Yuan.

Art. 10.—As soon as the formal Cabinet is formed this Yuan shall be abolished.

A Financial Crisis

On May 11 an important step was taken by the Cabinet with a view to conserving financial resources, the Bank of China and the Bank of Communications being instructed not to cash their notes or to allow depositors to withdraw their funds. It is officially explained that this drastic step was dictated by a set of conditions which if allowed to continue would spell financial ruin for the Government. Apart from the public unrest due to the disturbing conditions and the constant rumours of probable trouble, which frightened people into cashing notes and withdrawing deposits, a serious situation was created by the Independents seizing the Government banks in whatever provinces came under their control and releasing the notes kept there on reserve. Thus a flood of paper, for which there was no adequate silver reserve, was let loose in the south and quickly began to move towards the northern market. Again, the great demand for silver abroad forced the price higher than it has been for many years and as a result large sums began to move outwards. The temporary measures to render notes inconvertible

prevented the further movement of silver from the bank vaults, and enabled the Government to retain sufficient funds to meet obligations to foreign creditors not covered by the Customs and Salt revenues. For this purpose a minimum of a little over £6000 per month is required. The virtual failure of provinces to contribute the usual amount of revenue to Peking, plus the Government's inability to raise loans from foreign or domestic sources, brought matters to a head and demanded the introduction of heroic measures. When the Ministerial order which follows was issued there was some excitement in the Capital, but no outward demonstration, though at Tientsin, Shanghai and a few other places there was a brief panic among lower class Chinese who were unable to obtain cash for their small notes. It must be mentioned that notes of twenty cent, and fifty cent denomination are in circulation as well as of one dollar and upwards. As the coolie class make purchases in fractions of cents—actually with "cash," a copper or brass token with a square hole in the centre—their failure to obtain the usual metal for their notes not only angered them, but seriously inconvenienced them, and it was only natural that they should adopt the only measure left them to evidence their disapproval. The day following the issue of the order, however, the Banks made arrangements for the cashing of notes up to one dollar in value. The Ministerial order signed by the Premier was as follows, according to the *Peking Daily News* translation:

Since the outbreak of European War, the money market of the country has become stagnant and commerce has declined. Now unfortunately owing to the internal disturbances of the country the condition of the people has become worse aad worse; and we are indeed anxious for the situation. According to the practice of foreign countries whenever there is a financial crisis the cashing of the notes of national banks may be temporarily suspended and the deposits of the public may not be transferred or removed from the banks. Thus the financial condition of the locality may be maintained by keeping a reserve of ready money at the National Banks to the great advantage of merchants and traders. As this practice is very sound and profitable, it should be copied by our Government at the present time.

The Ministries of Finance and Communications are hereby instructed to issue an order to the Bank of China and the Bank of Communications to the effect that commencing from the date of the promulgation of this Cabinet Order the Bank of China and the Bank of Communications should suspend the cashing of all their bank notes and the deposits of the public. As soon as the situation becomes normal again, this Cabinet shall issue another order fixing the dates for the cashing of the above notes and deposits. The said two Banks are hereby instructed to take the responsibility for storing and sealing up funds.

In the provinces or Districts where the branches of the said Banks have been established, the Chiang Chun, Governors or Lieutenant Generals are hereby instructed to order police and troops to exercise a supervision over these branches preventing them from cashing notes privately, and preventing disturbances. Should any person refuse to accept or should accept with discounts these notes, he should be punished whenever discovered in accordance with the provisions made in article 9 of the Law Governing national currency.

The Chambers of Commerce and the said Banks should be consulted with the hope that all should act unitedly for the interest of the Nation. The said Banks are to be instructed to prepare detailed reports containing particulars regarding the amounts and denominations of the notes issued by them, and submit the same to the Ministry of Finance, thus preventing a superfluous issue of notes, etc.

Issued on this 12th day of the 5th month of the 5th Year of Min Kuo.

The Premier Criticises Canton Government

The formation of the government in Canton did not fill the North with pleasure, nor did it result as the South desired. Instead of producing any immediate results favorable to the South among wavering Northern Generals the tendency seems to have been the opposite. It consolidated the Northern military men in opposition to an organization which seemed to have disregarded their claims, and evoked much comment of a kind not calculated to be to the best interests of the South. Chiefly, military leaders declared that they would not play "second fiddle" to the organization at Canton, and in many quarters there seemed to be strong disapproval of the use of the name of the Vice-President by the southern leaders. Not that the Northern military ever had much use for General Li Yuan-hung, but it gave them opportunity to express "righteous indignation" and perhaps justification for exerting pressure upon the Vice-President to keep him in the North. The South undoubtedly did an injury to General Li Yuan-hung in thus publicly proclaiming him President of China. He was penned up in Peking, as it were, and was not a party to the move in Canton, yet was compromised in the eyes of those whose interests it was to see the Southern Government suppressed. In connexion with this matter the Premier issued a statement on May 14 in which he strongly criticised the Southern Government. It was as follows, and was sent to the various provinces:

A telegram has been received here from Kuangtung in which the revolutionary leaders of the South declare that the Southern provinces, which have declared independence, have organised a new Government with Kuangchow [Canton] as the capital, Li Yuan-hung as Great President and Generalissimo of the Army and Navy, thereby cancelling the Peking Government. The declaration also states that a Military Council has been established with well-defined powers, and that the same shall attend to diplomatic, financial and military affairs, etc. The Tutuh of Yunnan has been elected as Chief of the Military Council and Tsen Chun-hsuan as Vice-Chief, etc. The Peking Government has been obeyed by the whole country and reorganised by the foreign Powers as the permanent Government by process of the law after going through the stage of a provisional government. Can a few revolutionary leaders abolish the same? The question of a national capital was settled by the National Assembly and observed for several years. It is the place where the Ministers of the treaty powers reside—a fact definitely stated in the treaties—and for this reason the capital is of great importance in matters of national intercourse. It is therefore impossible for a small number of revolutionary leaders to change both the Government and the capital from the internal or external point of view. The Great President was elected by the representatives of the people of the whole country in accordance with the nation's fundamental law, and he has been honoured and obeyed by the people of the five families. How then can a small number of revolutionary leaders appoint a Great President? The report that these revolutionary leaders have appointed Vice-President Li as the Great President is a great surprise to all. Mr. Li is now living in Peking and is carefully obeying the law. How can he accept the appointment of a small number of revolutionary leaders? Kuangtung is separated from Peking by a distance of several thousand li. It is evident, therefore, that Tang and Tsen are trying to use Li as a mere puppet by putting up his name while they themselves assume the actual power. No insult to Mr. Li can be more serious than this. These acts are nothing short of a violation of the republican principle and the trampling of the will of the people. To attempt to set up a rule over the masses of the 18 provinces, three special administrative areas, the Manchus, Mongolians and Mohammedans by a mere paper declaration, is an affront to these masses of people, and the same might result in the dismemberment of the nation. We tremble in fear at the thought that this united nation of several thousand years may thus be made to split. Since the outbreak in Yunnan, the Government has been pursuing a policy of patience and peace. It has gone out of the way to yield to the wish of a minority of people in the hope that thereby the country might be saved from partition, and peace and order might be maintained. But while negotiations are proceeding, the small number of revolutionary leaders have boldly disregarded the welfare of the citizens and the safety of the nation by occupying a small corner of the country and setting up an illegal government. How can we deal with them in the sincere spirit of patience and peace when they are deliberately the enemies of the people and the country? Their cry was to support the Republic; but in actual deeds they have trampled on the fundamental principle of republicanism and the will of the people. If this can be passed over without notice then our country will no longer be a properly constituted country. If you have any opinions to express, please communicate direct with Messrs. Feng, Chang and Ni at Nanking, who shall discuss the same with the representatives of the provinces together with other affairs.

On May 13 a statement was published that Generals Feng Kuo-chang, Ni Shih-chung and Chang Hsun had telegraphed Yuan Shih-kai pointing out that the ultimate aim of the Nanking Conference was the retention of Yuan Shih-kai as President, but stipulating that he should hand over all power, military, executive and legislative, to the new Cabinet. The three Generals wished to have telegraphic assurances from Yuan Shih-kai, however, that he was sincere in his declaration that he would hand over all power, and sink his personal ambitions for the sake of the country. Upon receipt of such a telegram they stated that they would wire the southern leaders urging them to cancel the demand for the retirement of Yuan Shih-kai.

On May 16 news leaked out in Peking that the Government had secured a loan of Yen 4,000,000 from Japan through the medium of the Sino-Japanese Corporation, certain industrial concessions being granted in return. The attitude of the Japanese in this connexion puzzled not a few in view of the

active efforts of Japan to assist the South, but it is not surprising when Japan's efforts to be on both sides during the 1911 Revolution are remembered.

The Views of the South

The discussion of the arrangements for, and probable action of, the conference at Nanking did not inspire the Southern leaders to leap with the open arms of peace towards the North. They have set their minds on no settlement which will include the retention of Yuan Shih-kai as President, and it was given out early that the conference at Nanking would in all probability vote to prevent the retirement of Yuan Shih-kai providing that he handed over all power to the Cabinet. The Southern leaders desire to have more guarantees than can be given that Yuan Shih-kai will keep his word before they will, even for the sake of peace, agree to any compromise that will not exclude him. If the Nanking conference does vote solidly for Yuan Shih-kai as President the fat will once again be in the fire if the temper of the following circular telegram, signed by Tsen Chun-hsuan, "Commander-in-Chief of the National Protection Army," and Liang Chi-chao, "Chief of the Administrative Bureau of the Military Government of the Four Provinces," is at all indicative of the real feeling, the which there is every reason to believe:

"Situated as the country is, there is no other method which will cause fighting to cease save the retirement of Hsiang-cheng [Yuan Shih-kai]. This is the unanimous view of the country. Yet some are still advancing the suggestion of a patched-up settlement on the ground that, as the monarchy has been cancelled, Hsiang-cheng may be re-recognised as President. Tsai Sung-po's [Tsai Ao] reply is most effective. He suggests the case is like that of a woman who has trampled on her womanly virtue by divorcing her husband and then asks to be permitted to retire to the home and become the lawful mistress of the house again. This is at once offensive to law and decency. There is therefore no need to argue that this suggestion is unreasonable and impracticable.

"Some may even suggest that nobody but Yuan can control the Northern troops, the number of which is large. Apparently this argument is plausible, but upon careful consideration it is only superficially true. The question whether Hsiang-cheng is really able to control the Northern troops is already a doubtful one. But let us suppose that he is really able to do so. Then we must remember that Hsiang-cheng is already 58 years of age, and how long he will yet live no one knows. A mortal's life is limited, and we may do well to ask ourselves who will succeed Hsiang-cheng in the control of the Northern troops when he dies. In the humble opinion of Chun-hsuan and Chi-chao, the Northern generals, if they really care for the permanent welfare of the country, should take immediate steps to co-operate with one another and so bring about an effective control of their soldiery. If they will but do this, the retention or departure of Hsiang-cheng will not affect the peace and order of the North. If this be impossible and we are therefore compelled to rely on Hsiang-cheng alone, then we must not forget that Hsiang-cheng is a mortal and will die some day, be it one, two, five or ten years from to-day. On this view, some day the Northern troops will be out of control. If his retirement will cause trouble among the troops then what about his death? The attempt to secure a temporary peace on a basis of mere compromise is therefore to lay a dangerous mine for future explosion. The longer the doctor delays lancing a boil, the worse the suffering of the patient. Can we consider such Generals patriotic when they are thus satisfied?

"Among the Northern generals are the pick of China's martial heroes. Outside of Peking there are men like Feng Kuo-chang and Chang Hsun, and inside the Capital are Tuan Chi-jui and Wang Shih-chen. These are men admired by the whole country and looked up to as men of the hour. Not only are they famous for their military achievements but are also admired for their matchless excellence. What could they not do, if they would work in co-operation. If they would devise a method by which to settle the present question at a time of extraordinary difficulty, they would repay Hsiang-cheng for his former kindness to them by helping him to unshoulder his burdens, and show their patriotism by giving genuine and permanent peace to the country. Is this not what a real patriot should do?

"If on the other hand they should wish to retain Hsiang-cheng against the wish of the people, while we are not ready to say whether the North will be able to hold together, we are certain that it would be impossible to compel the South to yield on this point. Hsiang-cheng may act like a lean cow which is quite able to suffocate a pig by lying on top of it; the South, however, will not tolerate the swallowing of a cow by a strong tiger. Even if we grant that no other province but the five which have already declared independence will in future sever their connexion with Peking—which is of course most improbable—we wish to point out that it will be impossible for Hsiang-cheng to shoot down all the troops of the five provinces or massacre all the people of these five provinces. On the other hand the people of the five provinces are determined to fight to the last drop of blood. To expect them to change their mind would be like hoping to see the seas dry up. The fate of the country is therefore in the hands of those who will not sincerely seek for a permanent settlement.

"Those who advocate a compromise often base their arguments on foreign intervention. In the humble opinion of your servants if the advocates are really aware of the danger of foreign intervention they should realise all the more the urgency of the immediate retirement of Hsiang-cheng. It does not take an extraordinarily wise man to see that foreigners cannot remain indefinitely quiet while we continue to disagree internally. But when righteousness and morality and humanity are concerned no government in the world will deliberately embitter the feelings of four hundred millions of people for the purpose of protecting one single individual. It is not difficult to forecast what the conditions of intervention will be if intervention should actually become a fact.

"Since Hsiang-cheng has been morally defeated in the eyes of Chinese as well as foreigners, the iron verdict has been passed on him demanding his retirement. If he is still wise enough to retire before it is too late, he will—besides protecting his own life and reputation—spare the people from further suffering and save the nation from further humiliation. If he should continue to rely on his military power and cling to his presidential chair until he is forced to go, then........but let us refrain from making threats. What will these Generals, who love Hsiang-cheng as well as their country, say to this?

"It has been a regular practice of Yuan to accuse others of struggling for power and authority whenever he wants to attack those differing from him. He can but measure others according to his own standard. The more he speaks in this strain, the more his own offensive image will be revealed to the general public.

"Others we will leave alone. Chun-hsuan is both old and feeble in health. From his sick-bed he has risen with a great effort so that he might fight for the cause of republicanism. His idea is to seek death rather than glory. If Hsiang-cheng will retire in the morning, Chun-hsuan will disappear from the public in the evening. May heaven, sun and the gods take his life if he harbour any ambition to seize power with the intention of retaining the same. As to Chi-chao he is a mere scholar and not a politician. It has been against his real wish that he has put aside his author's pen and joined the army, but he has already made preparations to resume his quiet life when the time comes. This is a fact which needs no elucidation.

"Now since Huang Pi [Li Yuan-hung] has already succeeded to the presidential office in accordance with law, other matters will be solved without much difficulty. There are many who are capable of putting things again in order and reorganising the government. It is therefore his intention to enjoy the peace of a plain citizen when peace is actually restored. But the danger of the present position is extremely real. Strife will disappear if Hsiang-cheng will retire. In the interests of the country as well as Hsiang-cheng himself, there is no other safe course for him to take. We therefore take the liberty of pouring out our true heart. We respectfully await your advice."

The issue of the "moratorium" order was not obeyed by the Banks in Shanghai, Tientsin, and other centres. In Shanghai the Chinese merchants, and shareholders in the Banks of China and Communications, decided that it would be in the best interests of commerce if the Banks remained open and faced the "run." Both banks consequently paid out as demanded by the crowds of people who flocked at the doors, and with the aid of foreign banks they were able to weather the storm. The Bank of Territorial Development, however, closed its doors after a run of a couple of days. The foreign Banks agreed to advance $2,000,000 to the Bank of China if the Government would guarantee the repayment of the loan. When requested for an expression of view on this point the Ministry of Communications forwarded a letter from the Minister of Finance to Sir John Jordan, the British Minister at Peking, stating that the Government would guarantee the loan if it was divided between the Bank of China and the Bank of Communications, both being Government Banks.

Generals Feng Kuo-chang and Chang Hsun both opposed the "moratorium," telegraphing the Capital urging the immediate suspension of the order on the ground that it would create disturbances which might develop seriously.

Despite the acknowledged shortage of money the Government issued notifications that the interest for the 6% domestic loan, due in June, would be paid at due date and that the funds for the purpose were already in the Banks awaiting payment.

Shensi Declares Independence

By the middle of May the situation in Shensi province had grown critical. Bandits were active at Sianfu and elsewhere

and altogether it was obvious that the Central Government could not expect its representative, General Lu Chien-chang, to hold out against the pressure being exerted by the rebels. There was some fighting between the loyal troops and the rebel forces, but the former were compelled to surrender, the city being taken over by Chen Hsu-fan, who was appointed Tutuh. He later telegraphed the Central Government as follows:

"Ever since the movement for Imperial restoration was launched, the whole country has been seething with suppressed indignation against it. The people of Shensi, having taken greater pains and experienced more hardships in building up the Republic, now have a more intense feeling against Yuan than anywhere else. I, Hsu-fan, being of the opinion that since the Revolution of 1911 the people of this province have exhausted their energy, have used my best efforts to maintain peace and tranquillity for the last few months in the hope of averting the horrors of war which would render the lot of the people more unbearable. But, contrary to expectation, no understanding has been reached between the North and the South respecting the much-rumoured peace although some protracted negotiations have been entered into by both parties: while on the other hand, the inhabitants of Shensi have "accumulated" their hatred and vengeance against Chiang Chun Lu for his avarice and cruelty and the same has found expression in the recent riots and uprisings which have spread far and wide into towns and cities. To make matters worse the troops under the command of the Chiang Chun have molested the people, mercilessly slaughtered their brethren and violated the principles of humanity. Being unable to tolerate such a deplorable state of affairs, I on the 9th inst. at Pu-shan, in Northern Shensi, proclaimed formal independence and assumed the name of the Commander-in-Chief of the Protection Army of Shensi in the hope of hastening the conclusion of peace between the North and the South and maintaining peace and order in this province. Hardly had I made this declaration, all the "righteous troops" rallied around me. Now I am at Shanyuan at the head of my troops and negotiating with Chiang Chun Lu respecting the terms of his surrender. I am demanding from the Chiang Chun the surrender of the arms and the men under his command and his withdrawal from Shensi soil without delay. These terms have been accepted by the Chiang Chun and we are ready to enter Sianfu to accept the Chiang Chun's surrender tomorrow. My object in taking this step is simply to mitigate the horrors of war in this land and to prevent as far as possible the places from being ravaged through civil strife. It is indeed a matter of regret rather than of pride for me to take this step. As you are gifted with exceptional sagacity and foresight, you must have a definite plan to end the civil commotion. Every human and well principled person in this land can never support the author of the present trouble who has committed treason, to fight the whole country and thereby bring woe and disaster upon the innocent people."

Naturally any disaffection in Shensi is almost certain seriously to affect the neighbouring province of Shansi, and at this writing the "independence" of that province was daily expected. With Shensi's departure from the fold of the Central Government the situation in Szechuan also became worse. The Yunnanese made good use of the armistice to "consolidate their position" and interest the Szechuanese in the delights of "independence," and as a result the position of General Tsao Kun and his force of Northern troops in Szechuan became precarious. The troops showed signs of disaffection and could not be depended upon especially as they were open to an attack from the rear by the Shensi force as well as being confronted by the Yunnan troops. The Governor of Szechuan, too, was under very strong pressure from General Tsai-Ao, the leader of the revolt in Yunnan, and others, and found his position of loyalty to Peking difficult to maintain.

Japanese Activity in Shantung

On May 15 the Governor of Shantung reported by telegram to Peking that he was being pressed by Japanese not only to declare independence from the Central Government but also from other provinces. His message was as follows:

To the Office of the Generalissimo. The reason why I stated in the telegram of the 15th that I was forced by the Japanese to declare independence and sever all connexion with the whole country was that when the Japanese pressed me again and again to declare independence, I told them that as the Chief Executive had already agreed to retire from his presidential office, there could be no good reason for Shantung to declare independence. The Japanese, however, replied that by independence they meant autonomy and that as the Chinese Government was unable to protect Shantung, Shantung should at once become independent and place itself under the protection of some one else. From this it is to be inferred that the Japanese have forced me not only to sever connexion with the Government but also in respect of the whole country. This is why I said in my telegram that I was forced by the Japanese to sever all connexion with the whole country. Respectfully I despatch this telegram in reply and hope that it will receive your kind perusal. Signed, Chin Yun-peng.

This significant statement scarcely calls for any comment. The fact is that the Japanese, deny it as they might, were actively operating to cause disturbances and difficulties in Shantung. They were, as stated, giving open assistance to rebels. They afforded them the use of the railway and protection in railway territory. Japanese were, without disguise, aiding the rebel military officers, and Japanese rowdies were terrorising the citizens and police of Tsinanfu, the capital of the province. Investigations by independent people have without question established the complicity of Japanese in the Shantung upheaval, and denial of knowledge of the situation by Japan is useless.

On May 17, Mr. Lu Tseng-hsiang, Minister of Foreign Affairs, asked permission to resign, but his request was refused. He was given one month's leave of absence and the Minister of Communications, Mr. Tsao Ju-lin, was appointed acting Minister of Foreign Affairs. Mr. Tsao had previously been vice-Minister of Foreign Affairs and was thoroughly versed in all diplomatic questions affecting China and other nations.

A day later Mr. Sun Pao-chi, the Minister of Foreign Affairs, tendered his resignation, and Mr. Chow Tse-chi, previously Minister of Commerce, Agriculture and Industry, was appointed acting Minister of Finance in addition to his duties as Governor of the Bank of China. In view of the financial stringency his posts were the most difficult in the Cabinet.

Assassination of a Revolutionary General

On May 18 General Chen Chi-mei, one of the most notorious of the revolutionary leaders, was assassinated at the house in which he was residing in Shanghai, No. 14 Rue Chapsal. A group of Chinese, introduced by a Japanese, waited on Chen Chi-mei alleging that they wished to talk to him about a loan. Some conversation ensued, the party made an excuse for suspending the conversation, and as they were shaking hands to depart the ringleader produced a revolver and shot the revolutionist at point-blank range, the bullet striking him in the forehead and killing him outright. Other shots were fired, another Chinese being killed and some wounded. Four arrests were made immediately after the shooting. The assassination created a great sensation in political circles in the South, particularly because friction existed between various factions. The murder was naturally immediately ascribed to agents of the Peking Government, and the trial will no doubt prove whether the allegations are correct or not.

The removal of Chen Chi-mei deprives the old revolutionary organization of their most capable leader. He was undoubtedly one of the most active and courageous men the party possessed. His long-time associates were Sun Yat Sen and Hwang-hsin, and with them he worked up the old revolutionary party, the Tung Men-hui, and took a prominent part in the revolution of 1911, and the rebellion of 1913, as well as that of 1916.

The Nanking Conference and Yuan

In the meantime delegates from various provinces were proceeding to the Conference at Nanking. The "independent" provinces in the South refused to send delegates, and declined to discuss any terms with Peking while Yuan Shih-kai held his position. The first condition of peace so far as they were concerned was the retirement of Yuan Shih-kai.

Without this they refused to discuss anything, and from all reports went about their business of conducting a Southern Government oblivious of what Peking did or thought.

On the matter of retirement Yuan Shih-kai was reported to have definite views. It was stated that he was ready to abandon office provided that trouble could be avoided if he did so. In a telegram to the Nanking Conference he set out his attitude as follows, according to the *Peking Gazette:*

"When I lived in retirement in my own gardens, I had no intention to re-enter public life. Unfortunately the trouble of Hsin Hai arose and reluctantly I took on myself the burdens of the State together with others. This I did in defiance of difficulties and dangers. My spirit has been willing but my ability has proved insufficient. Thorns of trouble have sprung up everywhere. Ever since the uprising in Yunnan and Kueichow the people far and near

have greatly stirred. I confess that I lack the ability to see through misrepresentations as well as wisdom to rise to all occasions. My heart has been filled with remorse day and night and I have long cherished the desire to retire. Repeatedly have I consulted with important persons for a method by which again to set the house in order. They are all of the view that as the step will vitally affect internal and external relations, the same should only be taken with extraordinary care, otherwise disaster will result to the nation. Recently Tang Chi-yao, Liu Hsien-shih, Lu Yung-ting and Lung Chi-kuang have all demanded that I should retire, and Chen Yi has also advised me to take a rest. All these requests coincide with the intention which has long been in my heart. I, being a man of small virtue and little capability and deeply embarrassed by difficulties and hardship, earnestly hope that my original intention may be fulfilled. I assure you that I have not the least desire to linger at my post nor am I unwilling to yield power and position.

To Hand Down Power of Succession?

"But it will be against my original intention of saving the country if I were to leave my post without devising a method for reorganisation and so leave the country to disaster. I shall not be able to face the citizens if I were to do so. The most important question now is how to devise a measure to assure our future. As soon as this measure is devised, the other question can be solved at once. The said Shang Chiang Chun have invited the representatives of the provinces to discuss the question of the "great policy" (*sic*). This I am exceedingly glad to know. The situation is delicate, and dangers internal and external are surrounding us from every side. It is therefore hoped that you will thoroughly discuss the method of 'future reorganisation' and lay down a policy. You will from time to time consult the Government and agree upon a measure that all may share in the responsibility with a view that the country may be kept safe and whole instead of coming to immediate grief. With sincere expectations, I am, The Great President."

Shanghai Protests Against the Conference

As was to be expected the Southern leaders in Shanghai objected strongly to the Nanking conference. They regarded it as a measure solely to perpetuate the rule of Yuan Shih-kai, and consequently determined to do everything they could to prevent its voice having any weight in the country. Purporting to speak on behalf of 13,971 other Chinese Mr. Tang Shao-yi sent the following views to General Feng Kuo-chang:

"For the Martial Perusal of Chiang Chun Feng Hua-fu: As the result of the sedition of the Chief Executive the country has been thrown into the whirlpool of civil war. The whole country has been shaken from the foundation; and the four classes of people have been robbed of livelihood. The country has therefore received with some feeling of approval the news that you were to unite the provinces in an effort to solve the present question.

"But we are greatly surprised to learn from the newspapers that your name heads that of others under a telegram to the provinces, in which eight points for discussion are proposed. In the opinion of the public this is an ill omen; for how can we imagine a broad-minded person like you to put time into writing such extraordinary views. Without a single exception all the righteous banners against Yuan have been raised with the specific purpose of upholding the Provisional Constitution. There can be no other means which will bring about peace and yield satisfaction to all except the revival of the Provisional Constitution.

Position of the President

"You have indicated the only solution when you stated in your telegram that the law must be the final arbiter. But a careful perusal of the eight points you have raised shows that, with the exception of point 4 which touches on the financial question, every one is in direct conflict with the law. Take for instance the first point, which deals with the question of the Great President. The first sentence is that Yuan derived his authority from the power entrusted to him by the late Tsing House. On what principle of law is this based? Let us leave aside the law and look at the question in the sense of fact. Yuan Shih-kai received his title as provisional President upon the formal and legal election by the provisional Senate of Nanking; and he assumed the office of the Great President as the result of a formal election in accordance with law by the National Assembly. Would it not have been a useless waste of energy to hold such elections if the Tsing House could secretly appoint a Great President?

The Vice-President Must Succeed

"The reason why Yuan has lost his position as the Great President is because he has rebelled against the nation and illegally assumed the role of an emperor. As the Vice-President is not at all implicated in the plot of sedition, how can his status as the Vice-President be cancelled simultaneously with that of the President, who has actually committed an act of high treason? It is obvious that General Li Yuan-hung has the right to succeed as the new Great President of the Min Kuo. This is plainly provided for in the Presidential Election Law. On what is the nation going to base its authority if even this is to be denied?

The National Assembly

"As to the second question of the National Assembly. The question whether the parliament organisation law and the election law need to be revised or not rests with the National Assembly itself. We state with emphasis that no one is entitled to or will be allowed to alter the same at his own sweet will before the same have been formally revised in accordance with law.

The Question of Constitution

"The third point is about the constitution. If the Provisional Constitution of the first year of Min Kuo is to be used as the standard, as your telegrams say it will be, how can any one tolerate the idea of a non-legal organ (the Nanking Conference for instance) assuming the right to decide which part is suitable and which part is unsuitable for observance?

Location of the Army

"If the proposal made in point 5 respecting the army is to be actually put into effect, all the troops (Northern) hitherto opposing the righteous army of the South in the provinces of Szechuan and Hunan will be withdrawn to the Capital, and thus practically surround the new government. Can harmony and peace result from such a policy of suspicion and frightfulness?

"Furthermore, if the proposal of point 6 is to be carried out, Chu Jui, who opposed the righteous cause in the province of Chekiang, and Wang Chu-tung, a co-conspirator, will all be restored to their former posts. The confusion in future will then be worse than even it is now.

Punishment of Monarchists

"Your 7th point refers to the principal offenders. You openly recognise in your telegram that the sins of Yang Tu and others are piled mountain high and as innumerable as the hair; yet the only punishment you mention is to deprive them of the rights of citizenship. If so then the rebels [monarchists]. who hoped to become princes and dukes if their movement succeeded, would only be considered as social outcasts. Who will not want to try his hand at sedition if this is to be law?

"As to the party members you mention in the 8th point, they will be entitled to have their rights restored to them as they have been unlawfully trampled upon for their opposition to Yuan. How then can any one unlawfully judge who is to be punished and who is not?

The Only Question for Settlement

"We hear that you have already telegraphically advised the provinces, which have not yet declared independence, to send representatives to Nanking to attend a conference, and it is your intention to discuss these eight points at the conference and have the same passed for actual observance. You must remember that the country will indubitably fight if a rebel is upheld in the position of Chief Executive, leaving alone the fact that usurpation of a high post is forbidden by law and decency. How much more this is true when we remember that by the retirement of one man the whole country will come back to life once more. Yuan has repeatedly made the declaration that he is willing to sacrifice himself for the salvation of the country and the people. Why then is he still clinging to his post? There is and can be only one solution to the present situation; that is, Yuan must retire and General Li Yuan-hung must succeed him in office. This is a principle that is as great as the heaven and earth; and no one can have any objection to it. All other questions properly belong to the new Government and therefore have nothing to do with the retirement of Yuan.

A Word of Warning

"If the law is to be thrust aside merely for the purpose of retaining Yuan in his position, and artificial means devised to attain this end, nothing beneficial will result. On the contrary war will be prolonged. It is not difficult to see on whose shoulder responsibility will then rest. We wish to point out that the citizens will under no circumstance recognise the decision of the Conference.

Three False Views

"We have to notice the alleged triple reason why Yuan cannot retire: namely, (1) diplomatic difficulties; (2) revolt of troops, and (3) financial embarrassment. These reasons are false. What the foreign Governments have recognised is the Chung Hua Min Kuo. The legal successor to the presidential office must therefore be recognised by the friendly foreign powers. Besides, it is a fact that the foreign diplomats have just now lost all confidence in Yuan. Even for solving diplomatic difficulties the retirement of Yuan is the only solution. The troops are servants of the country and not servants of Yuan. If it is to be believed that no one but Yuan is able to control them, what can we expect of them if Yuan should die a sudden death? It has been an open secret that it was Yuan who incited the troops to revolt in Peking and Tientsin in the year Jen Tse. It is apparent therefore that unless the person in power order the troops to revolt upon his retirement, the soldiers will give no trouble. As to the question of finance, Yuan has done all he could during the last four years to scrape every bit of money, yet the confusion of finance has increased day by day. Recently for the

purpose of massing silver to pay the troops for another war, he has arbitrarily ordered the Bank of China and Bank of Communications to suspend specie payment, which has created a financial panic unknown in history. It will thus be seen that every day's delay regarding Yuan's retirement means more financial trouble to China.

"The conclusion is therefore precisely the opposite to that advanced in your telegram. Tang Shao-yi and his colleagues, bitterly struck by the prospect of the sad fate of an exterminated nation and seeking for a method to avoid such a calamity, are convinced that salvation lies in one word, namely 'Law.' Any attempt to run against it will result in disaster. In pursuance of our duty as citizens of the Min Kuo, we hereby present you this open message and pray that the wise and virtuous will give it due consideration. In the interests of the country, we remain

Yours,

Citizens from other provinces but resident in Shanghai,
Tang Shao-yi and 13.971 others."

On May 19 and 20, the Conference held meetings. The following delegates were nominated to represent the following provinces by the officers named but all were not in attendance when the Conference opened:

Kiangsi:—Ho En-pu representing the Chiangchun, and Chen Yong-chi representing the Civil Governor.

Honan:—Pi Tai-chang representing the Chiangchun, and Ye Chi, representing the Civil Governor.

Shansi:—Tsai Ting-hsien, representing the Chiangchun, and Li Chun representing the Civil Governor.

Shantung:—Sun Chia-lin, representing the Chiangchun, and Ting Chia-tu, representing the Civil Governor.

Mukden:—Liu En-hung, representing the Chiangchun, and Chao Hsi-fu, representing the Civil Governor.

Jehol:—Hsia Tung-jao representing the Tutung.

Kirin:—Chang Ju, representing the Chiangchun and Tai Shi-yuan, representing the Civil Governor.

Chahar:—Ho Yuan-chun, representing the Tutung.

Suiyuan:—Hsiun Kui-sheng, representing the Tutung.

Heilungkiang:—Li Ching-lin, representing the Chiangchun.

Hunan:—Hu Yin-su, representing the Chiangchun.

Hupeh:—Feng Yu, representing the Chiangchun and Yang Wen-kai, representing the Civil Governor.

Fukien:—Ko Wen-hsiang representing the Chiangchun.

Shanghai:—Chao Zen, representing the Military Commissioner General Yang Shan-teh.

Woosung:—Wang Ping, representing the Deputy Military Commissioner General Lu Jung-hsiang.

Szechwan:—Chang Lien-feng, representing the Chiangchun and Liu Hsi-chun representing the Civil Governor.

It was early seen that the delegates were not unanimous as to what action they should take to determine the future of the Presidency. Some were in favour of retaining Yuan Shih-kai, others advocated Li Yuan-hung, while a section desired an election for President as soon as possible. This group were prepared to allow Yuan Shih-kai to retain his post until a Parliament could be called and an election be held. No delegates from the "independent" provinces were present but southern leaders expressed their views by telegraph. Delegates from the South were invited, and particularly it was desired that Tang Shao-yi should attend, but the latter declined to take any step until Yuan Shih-kai had made it manifest that he would retire. Discussion ultimately developed a line of action. It was decided to intimate to the South that the conference was in favor of Yuan Shih-kai retiring, and was ready to announce that, but in view of such a step it was advisable to have delegates from all provinces present, so that a vote embracing all provinces could be taken. To enable the southern representatives to be present, the Conference was postponed for a few days.

At this time of writing (May 24) the indications are that Yuan Shih-kai will be requested to relinquish office, and that there will then be a contest for the post between General Tuan Chi-jui, General Feng Kuo-chang, and Tsen Chen-hsuan.

The Japanese have expressed a desire to give sanctuary to Yuan Shih-kai, and have, it is stated, gone so far as to arrange for train and boat to carry him to Japan. It is likely, however, that the invitation will not be accepted, but that some other Legation will do the honours in the event of Yuan Shih-kai needing protection should he ultimately decide to leave Peking as desired by the people.

NEW ZEALAND WATER POWER

The scheme for the harnessing of the Wairoa Falls for hydro-electric purposes is now rapidly approaching completion. The power from the falls is to be used for the supply of electricity to the town of Whangarei. The work has been undertaken by a local cement company which is also erecting a new cement mill at Portland, on the shore of Whangarei Harbour and it is expected that in three or four months time the whole of the new works should be in operation. The central principle of the hydro-electric scheme is the tapping of the Wairoa River, one of the main branches of the Northern Wairoa, just above the celebrated Wairoa Falls, which are situated about midway between the two coasts of North Island, and the conveyance of a large body of the water to a power house on the river-side a mile and a half lower down.

The canal into which the water is diverted has a minimum width at the bottom of 24 ft. and a maximum width at the top of 60 ft. This canal terminates in a reservoir 360 ft. long by 100 ft. wide, whence the water is conveyed through the largest water-carrying pipes in the Dominion to the power house. The power house is designed to accommodate eventually turbines of 6,000 h.p.; the 3,000 h.p. plant now provided is sufficient for present purposes, but can easily be doubled by augmenting the pipe lines and electrical machinery as the demand increases.

Some of the latest ideas and inventions have been employed in connection with the scheme. One of these is an automatic weir on the overflow of the big dam, the first of its kind to be erected outside Europe. The installation of this weir, which consists of two 44 ft. gates which rise and fall automatically with the flood water, is the result of a demand by the Public Department that arrangements should be made in the river for the discharge, in flood-time, of more than 30,000 gallons of water per second.

JAPANESE HYDROELECTRIC COMPANY

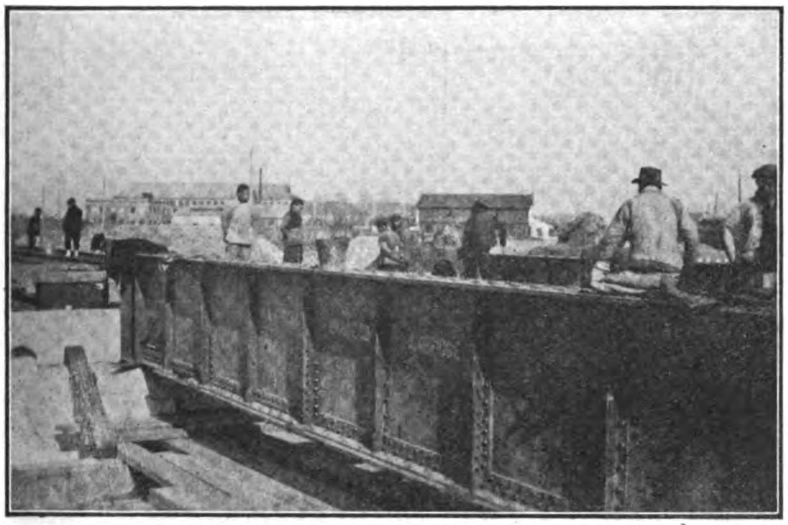
It is reported that business men of Tokyo are planning a new hydroelectric company to utilize the water power of the Namchon River in the south of the Korean peninsula. The company will be capitalized at $1,500,000, and will purchase the rights of the present Taiku Electric Co. It will not only supply electricity to the district but will also assist in the irrigation of neighboring lands. As application has already been made, it is expected that work will be begun in the spring of 1916. The plant of the company will be located at Hyopchon, South Kyongsang Province.

SIAM'S IRRIGATION SCHEME

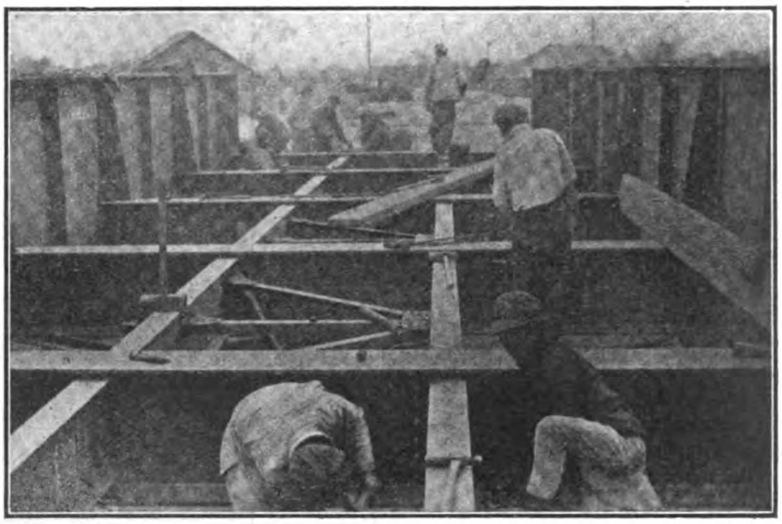
The Siamese Government has decided to proceed at once with the construction of the "Prasak" scheme of irrigation. The estimated cost of this scheme is $4,255,000, and it is designed to provide an extensive canal for Prasak, and to develop more fully the existing canal system of Klong Rangsit. In the budget estimates for the fiscal year ending March 31, 1916, $555,000 was set aside for irrigation purposes, and the preliminary expenses in connection with the Prasak scheme will be provided for by this appropriation. This project will initiate a system of irrigation which will eventually make about 2,400,000 acres of waste land of lower Siam available for rice cultivation, and for the carrying out of which the British India irrigation expert thought that a capital outlay of about $50,000,000 gold would be required during the present generation.

JAPAN'S INTEREST IN SHEEP RAISING

Japan's new interest in sheep raising is noted in Australia, where press reports give the details of the visit to that country of the chief of the Imperial stock farm at Hokkaido. The Japanese official purchased some merino and Romney rams at Monaro in New South Wales, and sought Corriedales and Romneys in New Zealand. There are now in Japan not more than 15,000 sheep, and only by the most intensive efforts can the country support 500,000. Even should Japan be able to raise the number of sheep to half a million, this number would not begin to meet the demand for wool and for mutton, and the nation would have to continue importing both. The possibilities in Chosen are cited as making a radical difference in Japan's standing as a consumer and importer of wool.



35 Ft. Span Railway Bridge



Floor System of 65 Ft. Through, Plate-Girder Span

AMERICAN BRIDGES FOR SHANGHAI

Several new bridges have been erected recently in Shanghai and its immediate neighborhood, four being for the Shanghai-Hangchow-Ningpo Railway junction line including a 145 ft. span across the Soochow Creek at Jessfield. Another of quite a new type to China is an American design highway bridge, which spans the same creek in the Chapei district on the Stone Bridge Road.

Less than a year ago the Shanghai-Hangchow-Ningpo Railway, Junction Line, placed an order with the United States Steel Products Company for four bridges to be fabricated in the shops of their constituent company, The American Bridge Company at Ambridge, Pa. The completion of these bridges on schedule time, notwithstanding difficulties brought about by the war, has been most gratifying; for they were fabricated in America, transhipped to China, and erected within eleven months after the order was cabled to America. The accuracy with which all the parts of these bridges fitted when assembled in the field has been another source of gratification.

The designs and specifications were very completely worked out in detail by the Railway Company. Three of the spans are through, plate-girder structures, and one is a through, riveted, pratt-truss bridge of 145 ft. span. This last bridge crosses Soochow Creek at Jessfield. It is provided with a foot walk supported on cantilever brackets outside of the trusses. In anticipation of heavy traffic in the future, which may demand a double track, provision has been made for carrying the second track by making one girder in each bridge heavier and stronger than the other.

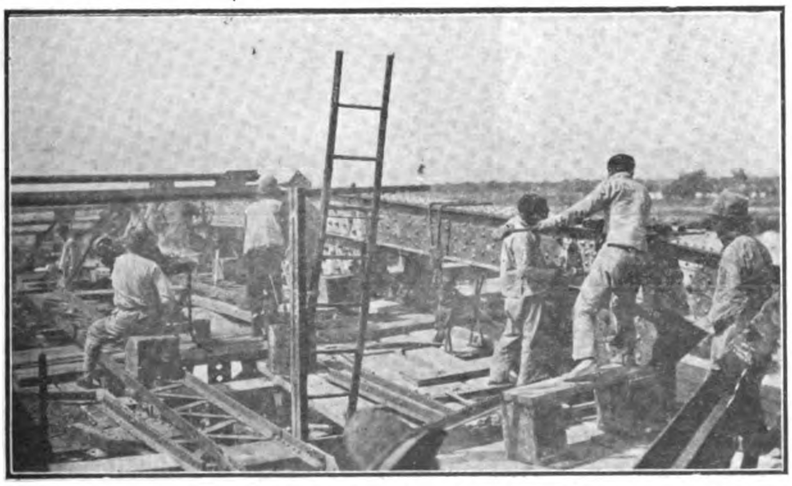
English practice rather than American practice has been followed in regard to the height of the truss, which is comparatively low and the panel length which is somewhat shorter than customary in America. The floor system makes use of wide-flanged, Bethlehem girder-beams, resulting in very neat, compact appearance and in economy of material and shop-work, together with a minimum of exposed surface offered to the weather.

Steel Highway Bridge

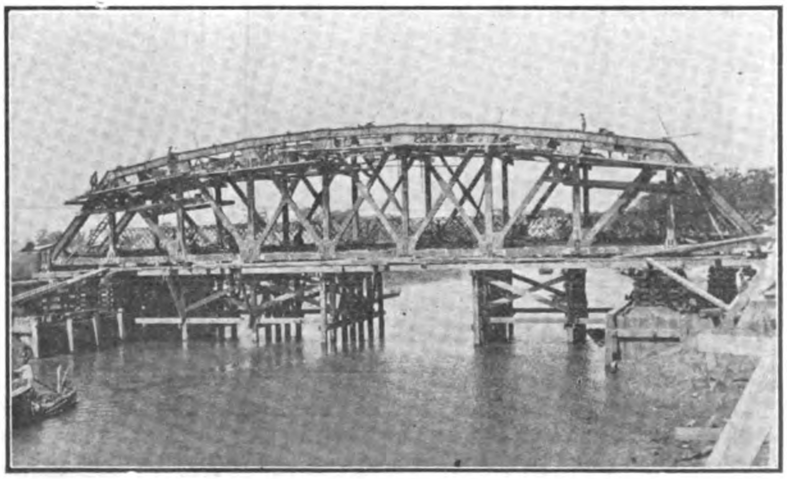
A bridge of a type quite new to Shanghai has just been erected across Soochow Creek connecting Stone Bridge Road with Chapei. This is a typical American highway bridge, a substantial rigid steel structure, but having light graceful lines. It was designed specifically and economically for the loading which it is to carry, and is not burdened with superfluous deadweight.

In this neighborhood we are accustomed to seeing railway bridges designed to carry heavy locomotives and trainloads, or such highway bridges as "The Garden Bridge," designed to carry street railway tracks, broad driveways, spacious foot walks and comparatively heavy flooring material. Such bridges are necessarily massive and are in marked contrast with this new "Stone Bridge," which, by reason of the comparatively narrow roadway (20 ft.), the absence of street railway tracks, and the use of a plank floor, it was possible to design to more graceful proportions.

The length of the bridge is 200 ft. 3 in. out to out. In order to secure the necessary clearance above high water, required by



Chinese Riveters—Top Chord of the 145 Ft. Span

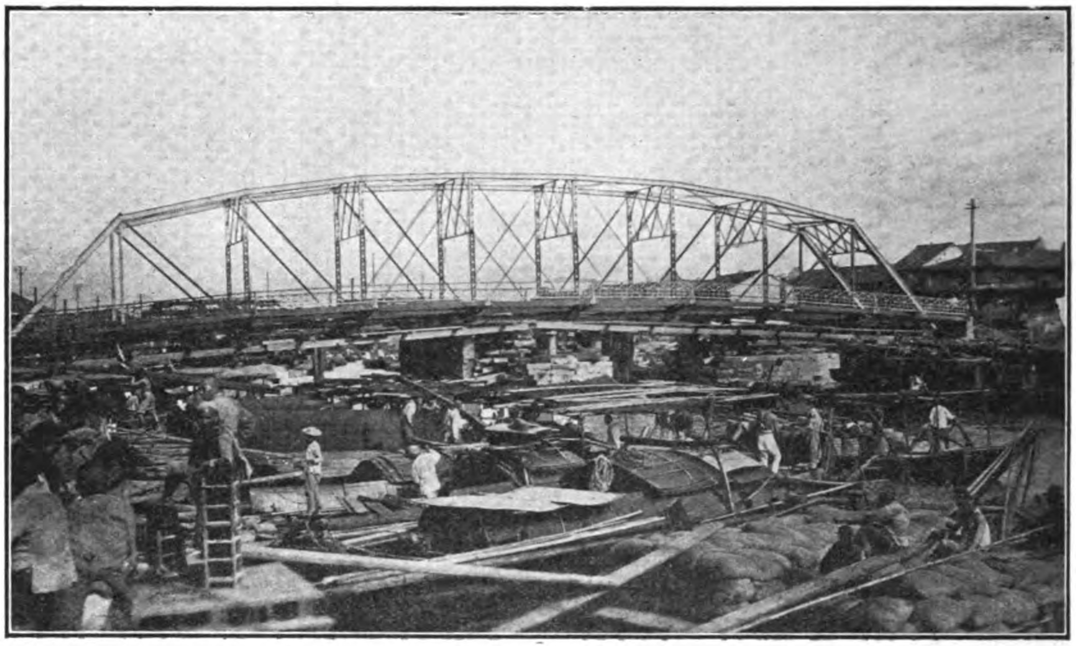


145 Ft. Span over Soochow Creek at Jessfield

the harbor regulations, a camber of 5 ft. was given to the lower chord. In other words, the floor of the bridge rises by an easy grade to a height at the center 5 ft. higher than at the ends. This curving of the lower chord not only serves to give the necessary clearance, but adds to the attractive appearance of the bridge.

A better view of this bridge will be shown to our readers at a later date when the piers have been removed from the river, which now remain from the original stone bridge, and which have been used during the period of erection to support the working platform, on which the steel was assembled.

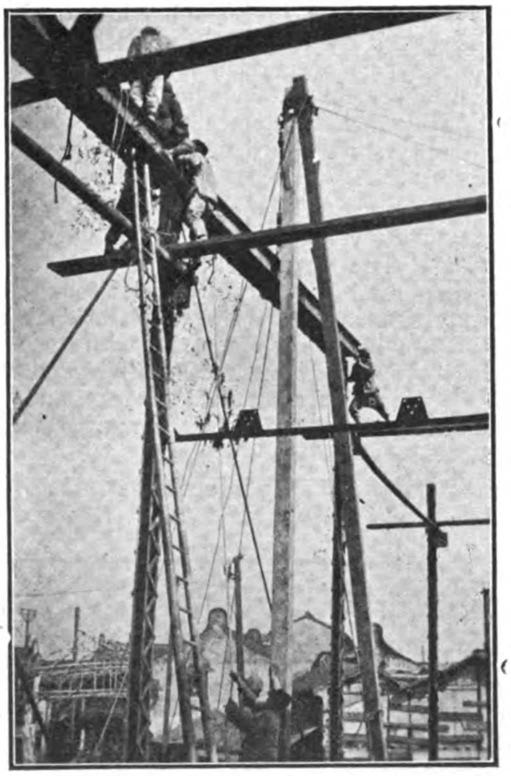
The bridge was purchased under an order from the Chapei (Chinese) Municipal Council, the General Contractor being F. L. Kow Kee & Co. E. J. Muller was retained as Consulting Engineer, and the bridge was manufactured by one of the constituent companies of the United States Steel Products Company of New York and Shanghai.



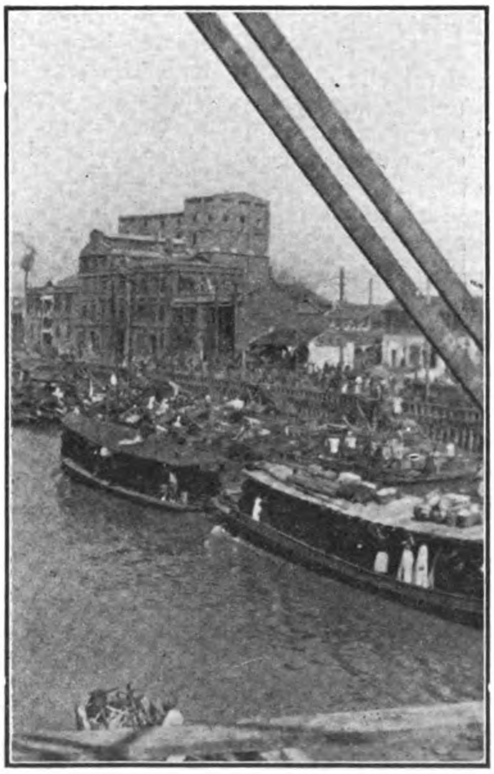
Highway Bridge in Process of Erection, Soochow Creek, Shanghai, Connecting Stone Bridge Road with Chapei

The ease and rapidity with which this bridge was erected speaks well not only for the skill of the Chinese erectors, but also for the type of the structure and the accuracy of the manufacturer's work. The main joints of the trusses are all "pin-connected," a very common, though not a universal practice in America. The small amount of riveting required in such a structure is a consideration which recommends the pin-connected type in a land where good riveters and experienced foremen are few and hard to find.

This bridge was not assembled prior to shipment, but the accuracy with which all the parts came together when assembled in the field was all that could be desired. It is, therefore, a good example tending to illustrate that American bridge-shop methods insure accuracy of fit in the field, even though the bridges are not completely shop-erected.



Erecting a top-Chord Member



Soochow Creek. View from New Stone Bridge

Superintendent of Erection

JAPAN'S TOBACCO MONOPOLY

According to official figures recently published, the profits of the Government Monopoly Bureau for the fiscal year 1916 were 68,780,000 yen, an increase of 900,000 yen over the profits of the previous fiscal year, but a decrease 2,000,000 from the estimates.

JAPAN AIDS STEELMAKERS

The government has appointed a commission of twenty members, government officials and private men, to investigate the conditions of the steel industry in this country and to evolve plans for promoting the steel industry in Japan. Lack of iron ore is the chief difficulty.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

South Manchurian Railway Estimates.—The S. M. R. Co. Enterprise Estimates for the current fiscal year are larger than those for the preceding year by about Y6,000,000, and are scheduled under various headings as follows:

ENTERPRISE ESTIMATES

Mining	Y5,741,273
Railway { Main & Branch Lines.	2,562,350
Railway { Mukden-Antung Line.	207,205
Harbour	1,793,873
Improvements in Railway Area and land items	858,507
Buildings	411,694
Electricity	159,615
Gas	74,298
Hotels	15,985
	11,824,799
Emergency fund	500,000
Total	Y12,324,799

The principal items of enterprises, both new and continuation, are as follows:—

Mining: Acquisition of appliances and installations for introducing the sand-flushing method into the Fushun Collieries. Purchase of the area for gathering sand. Extension of sidings for transporting coal and sand. Excavation of pits for sand flushing. Construction of sand waggons, locomotives, and passenger cars. Perfection of draining, coal screening, and transporting equipments. Extension of the Water Gas Producer Factory. Construction of a sulphate of ammonia manufactory. Construction of additional housing accommodation and extension of the waterworks.

Main and Branch Lines: Double-tracking of Suchiatun-Mukden Section. Construction of retaining walls and embankment, draining, cutting, etc. Continuation of the double-track bridging work over the Hun, and construction and repairing of other bridges. Laying of rails to the total length of about 38 miles. Construction of additional sidings. Improvement of points and crossings. Foundation work of new engine-shed at Dairen. Construction of engine and car sheds at Mukden. Improvement and installation of signalling appliances. Laying of additional telegraph and telephone wires. Extension of electric repairing shops. Additional equipments for Railway Workshops, Shahokou.

Mukden-Antung Line: Cutting work and construction of drains and culverts. Improvement of points and crossings. Improvement and installation of signalling appliances. Purchase of tarpaulins. Construction of four locomotives for goods trains, four 1st class cars with sleeping accommodation, four 1st class cars, ten 3rd class cars, four parcel cars, and 80 flat cars.

Harbour Works: Reclamation of shorefront at Jijiko (East End) and Hama-cho. Continuation of dredging operations in the Harbour. Continuation of construction of Northwest Breakwater and Wharf No. 3. Re-enforcing of west quay wall of Wharf No. 2. Removal of Concrete Blockyard. Re-bunding work at Yingkou and Antung. Continuation of construction of a permanent warehouse at Dairen Wharves. Installation of two cranes for cargo-work at the new warehouse. Sundry improvements at Antung, Yingkou, and Shanghai.

Improvements in Railway Area: Water supply, construction of roads, bridges, drains, etc., at the Railway Towns. Construction of isolation wards at Dairen and Penchihu and a ward for the weak-minded at Mukden; and purchase of necessary medical instruments, etc. Construction and extension of school-houses at Kaiyuan, Ssupingkai, and Changchun. Construction of school houses for the Chinese Primary Schools at Hsiungyocheng and Changchun, construction of dormitories for South Manchuria Medical College and South Manchuria Technical School, etc. Extensions and alterations for Agricultural Experimental Stations and Central Laboratory.

Buildings: Construction of new Wharf Office Building, Dairen, Stores Depot, and a storehouse for Harbour Works Office, etc.

S. M. R. Traffic Returns.—The South Manchuria Railway Traffic Returns for April totalled Y1,994,540 giving the daily average of Y66,484 and showing a decrease from the figures for the corresponding month of last year of Y21,518.

Increase of Y6,000,000 in the estimates for the current fiscal year over those for the last fiscal year has been announced. The total deficit to be met in the current fiscal year is about Y8,000,000, which amount will be raised by further calls on the Company's shareholders probably in October and again in April next year.

Shanghai-Hangchow Railway.—A peculiar state of political affairs has stopped traffic over a 21 mile section of the Shanghai Hangchow Railway whose tracks lie in both Kiangsu and Chekiang provinces.

The Shanghai-Hangchow Railway, it is stated, is quite ready to run through trains to the Chekiang capital, but it is pointed out that Chekiang province has declared its independence of the Peking Government and Kiangsu has not. Consequently a state of semi-hostility exists between the two provinces. This political condition may exist only in theory, but until the two provinces are of one mind politically, the military authorities of each may prefer that through railway traffic should be suspended. Trains are running from Shanghai to Sungkiang, and from Kashai to Hangchow. The distance between the two stations, which may be covered on foot, by launch, or railway trolley, is 21 miles. When the military authorities of both provinces are in full agreement through traffic will be resumed.

Russo-Japanese Through Traffic Conference.—Altogether 43 items were agreed upon at the Russo-Japanese Through Traffic Conference which was signed on April 28th, and the Conference brought to a close. The next Conference is expected to be held at Petrograd in November. The chief features of agreements reached are as under:—

Instead of holding a formal meeting of the respective delegates once annually, a meeting may be called whenever occasion may require. As regards the issue of Japan-Manchuria excursion tickets the Russian delegates shall arrive at a final decision after their return to Petrograd. The fall of the rouble shall not be made a cause of loss to the Japanese members of the compact. The interpretations of the through goods tariff and shall be made uniform. Certain additions shall be made to the lists of the through traffic stations as well as to the list of through goods. Matters concerning the freights on cotton goods and through railway goods in bond for transportation through Chinese territory also were settled.

Japan Plans Broad Gauge.—At a meeting of the Railway Investigation Commission which was held recently at the Railway Board, Count Okuma, the chairman, was absent, and Dr. Soyeda, assistant chairman, presided. The relative merits of the broad and narrow gauge systems for carrying freight were discussed. Dr. Furukawa, vice-president of the Imperial Railway Board, and Mr. Sugiura and Mr. Morimoto, both directors of the board, replied to inquiries raised by other members of the commission.

Under the plans for making the railway system of Japan a broad gauge system recently announced by the Railway Board, it is estimated, will take until 1943 for completion and will be carried out at a cost of approximately 1,408,000,000 yen. The outlines of this comprehensive project have been sketched in a report submitted by a committee which has made estimates of the outlays necessary and has even worked out the figures and measurements in connection with the tracks and rolling stock for the new system. The money necessary for the proposed change will come from the following sources:

From 1916 to 1940, 20,000,000 yen shall be transferred from the general accounts of the government annually, making 500,000,000 yen in all. The profits of the railways in those years will amount to 908,000,000 yen, making a total of 1,408,000,000 yen. Against this, the expenses of construction and the extension of new lines will be 317,000,000 yen; the expenses for repairs of various lines other than the broad gauge lines (Kyushu, Hokkaido, Shikoku, Sohu lines), 209,500,000 yen; the expenses of changing the line from Tokyo to Shimonoseki into a broad gauge line 232,000,000 yen; repairs after the change of that line, 49,400,000 yen; the change of lines other than the trunk line in Honshu into broad gauge lines 600,100,000 yen, which will bring the total up to 1,408,000.000 yen.

The expenses of changing the main line are estimated as follows: For the period to 1926 the outlays for railways, 192,625,784 yen; for machine shops, 5,393,500 yen; for cars 59,978,-545 yen; for electricity, 1,639,191 yen; for expenses connected with the railway tracks after the change, 4,806,000 yen; for cars in that connection, 12,090,000; a total of 276,533,040 yen. The disposition of disused rails, bridges, sleepers and cars is expected to bring in 44,270,970 yen and when this amount is deducted, the expenses will amount to 232,260,-270. Between 1926 and 1943, the expenses of the change, after deducting the sale of disused property, will be 297,162,450 yen. In the business department the entire amount needed will be 50,078,713 yen.

The standard gauge will be adopted for the main railways. The width of tracks will be 4 feet 8½ inches; the weight of the rails 90 pounds for the trunk lines and 80 pounds for the side lines; the height of the cars 15 feet 6 inches, the width 12 feet 3 inches; the weight of the locomotives, 108 tons for express passenger service, 86 tons for ordinary passenger service and 160 tons for freight service. The capacity of a passenger car will be 132 persons (third class); the average length 60 feet 6 inches. The average capacity of the freight cars will be 26.65 tons, with an average length of 24 feet 3 inches. The aver-

age number of cars in one train will be 87 for passengers, and the average capacity of trains will be 629 persons, or 30 cars of freight with a maximum capacity of 780 tons and an average capacity of 390 tons.

Japanese Travellers Save Money.—The economical tendencies which are now prevailing in Japan are marked especially among railway passengers. According to the figures given by the railway bureau in 1907, the number of the first and second class passengers decreased, while that of the third increased. This was again true in 1915. The figures for 1911 and 1915 follow:

	1911	1915
First class passengers ...	7,432	5,733
Second class passengers	162,043	161,737
Third class passengers...	2,830,854	3,125,103

Chosen Ry. Hotel at Pyengyang.—The local press reports that the authorities of the Railway Bureau of the Government General of Chosen have included in the budget for the next fiscal year (ending Mar. 31, 1917) an estimate for the erection of a railway hotel at Pyengyang, Chosen. Correspondence regarding supplies for this undertaking should be addressed to S. Inohara, Esq., general manager of the Railway Hotels, care Chosen Hotel, Seoul.

Railway Facilities at Vladivostok.—The British consul at Vladivostok reports that cargo arriving at that port now is proceeding to European Russia without any serious delay. This is the case with private cargo as well as with Government cargo. The number of cars leaving Vladivostok daily for Siberia and Russia is 200, each car carrying 1,000 poods (about 18 tons). As a rule 160 of these 200 cars are taken up for the conveyance of cargo belonging to the Government, the remainder being allotted to owners of private cargo. The distribution of space is in the hands of a committee, which meets every week, and is presided over by the commandant of the fortress. For some time, since Government cargo has been slack, there has been ample accommodation for the goods of private persons, and it is a matter of fairly frequent occurrence for this space to be partly unutilized. It will thus be seen that there may be said to be no congestion of goods at the port, since all merchandise arriving is proceeding normally. Additional berthing accommodation has been supplied recently at Vladivostok, but this does not at present increase the capacity of the port for general trade, since the new quays and several of the old ones are taken up by the steamers bringing railway material from the United States. There is at present, however, no lack of room for general cargo steamers.

Steel Cars on Indian Railway.—The Great Indian Peninsular Railway which recently successfully experimented with one steel passenger coach, has now constructed an entire train of that material. The train runs as the Bombay-Delhi Express, carrying intermediate and third-class passengers. Each carriage is 68 feet long and the body, including the roof, is of steel plate riveted and welded to steel supporting members, so that the whole of the body and the underframe, on which the former is built as one piece, are of steel. Inside the "shell" the fittings and furniture in touch with the passengers are of wood, as are the window frames, venetians, etc., while the actual lining is of asbestos heat-resisting composition, held up with wooden mouldings secured to the steel members. One carriage has all its internal woodwork made of Japanese ash as an experiment.

Siamese Railway Progress.—The Siamese Railway is making good progress. The line has been opened south of Koh Lah 26 kilometres to Huey Yang, and a further 50 kilometres south of the town to Bang Taphan. It is proposed to open the intervening gap between Bang Wa and Bang Taphan in August, when there will be through rail communication between Bangkok and Singgora. At present there is a tri-weekly train service from Trang to Nakon. The date fixed for the Bangkok-Kedah line to be opened is June, 1917, but doubtless there will be through rail communication before that.

Shanghai Tramways.—The following is the traffic return of the Shanghai Tramways (Foreign Settlement) for April, 1916, and for 4 months ended 30th April, 1916, with figures for the corresponding periods last year:—

	April, 1916.	April, 1915.
Gross Receipts	$118,791.02	$100,693.83
Loss by currency depreciation........	31,305.01	27,216.18
Effective Receipts..........	$87,486.01	$73,477.70
Percentage of loss by currency depreciation........	28.00	28.79
Car Miles run..	298,039	261,818
Passengers carried	5,252,402	4,362,344
	4 months 1916.	4 months 1915.
Gross Receipts	$472,298.07	$410,824.59
Loss by currency depreciation........	123,322.76	109,479.02
Effective Receipts	$348,975.31	$301,345.57
Increase	$47,629.74	
Percentage of loss by currency depreciation........	27.74	28.44
Car Miles run.	1,165,773	1,053,923
Passengers carried.	20,837,820	17,943,791

$ Increase 2,894,029 passengers or 16 per cent.

Shanghai to Hankow by Rail.—Now that trains are running daily from Hsuchowfu to Chengchow without change of cars, "via Nanking" has replaced the River trip via Hankow as the fastest route for Shanghai travellers to Kaifeng, Sianfu and Sanchowfu. This is due to the opening of the Hsuchowfu-Kaifeng section of the Lung-Hai Railway. From Chenchow, construction is being carried on to wards Sianfu, and trains are running regularly to Nuanyintang, a nine hours' journey from Chengchow.

Manila Railroad Extension.—Opening up a rich copra producing country on the Pacific coast, and rendering the means of communication in that part of the Philippines much easier, the Manila Railroad Company inaugurated on May 8, a new line from Manila to Hondagua, in Tayabas, a distance of 240 kilometers. A party headed by Horace L. Higgins, president and general manager of the company made the trial trip. From Laguna province to Hondagua on both sides of the car track are rich coconutgroves and in Tayabas, long stretches of valuable forest land could be seen. It is the plan of the railroad company to extend the new line as far as Nueva Caceres, in Ambos Camarines, thus connecting the Manila principal line with the detached line operating now in the Bicol provinces. But this project will not be undertaken for two or three years. With the opening of the new service, the present length of track operation of the company is 625 miles. From Hondagua there is a short line running to Calauag, toward the south. After the opening of the service, it is the intention of the company to establish steamer connection between Hondagua and the ports of Alabat, Sangirin, Mauban, Infanta, Baler, and Polillo (to the North), on the Tayabas Pacific coast, and to Quezon, Capalonga, Mambulao, Paracale, Mercedes (Daet), Naga anchorage and Naga wharf (to the South), in Ambos Camarines, thus bringing these ports and quicker and closer connection with Manila than the present all water route.

Censures P. I. Railway Plan.—The movement started by the Philippine government to purchase the Manila Railroad Company's lines, details of which have appeared in the last two issues of the Far Eastern Review, has awakened some antagonism on the part of capitalists who have large investments in the Philippines Charles M. Swift, head of the Manila Electric Railroad and Light Company, and President of the Philippine Railway, condemned the agreement reached between the owners of the Manila Railroad Company and the American administration by which the Philippine government is to purchase the road. According to the details of the agreement, President Wilson has given his sanction to the scheme and has also approved a plan to safeguard the owners of the $16,125,000 bonds now held in the Unites. The plan, however, does not countenance safeguarding the holders of Philippine Railway bonds, on which interest has been guaranted by the Philippine government.

"The Manila Railaoad, so called," said Mr. Swift, "is owned by an English corporation, represented in the United States by James Speyer. I have not been taken into the confidence of the Administration enough to know why this particular corporation is so specially favored over American ones.

"I understand that the first payment will exhaust most, if not all, the funds in the Philippine treasury, which are raised specifically for other purposes. As the Jones bill carefully restricts the power of the Philippine government to raise money by a bond issue, it seems a little inconsistent to rush through a sale that will make a further bond issue absolutely necessary, without any investigation of the circumstances."

SHIPPING

New Seattle-Pacific Line.—From Seattle comes the announcement that the Chinese-American Products Exchange Company has backed a group of Seattle business men who have formed a $5,000,000 company for a new freight service from the Pacific Slope to China, Japan and the Philippines. The Chinese-American Products Exchange Company has a capital of two million yen, with branches in Shanghai, Hongkong, and Manila. Lately it has been experiencing difficulty owing to the shortage of bottoms, and it has promised the newly organised Seattle shipping group to give it all its shipping business provided the new service meets its requirements. The company had announced its in ention of starting the new freight service within three months, but it was learned later that the company had already engaged the steamer Republic, 4,629 tons, to load for the Far East. Her departure date was then fixed for April 15. So pressing was the need for shipping space that the vessel was being loaded and repaired at the same time.

The Republic has a decidedly interesting history during the last 18 months. It was formerly the German-Australian line freighter Walkure, and had just left New Plymouth, a New Zealand port, when war broke out in August, 1914. Arriving at Papeete, one of the Pacific Islands, it was there a day when the German cruisers Scharnhorst and Gneisenau came to the island and shelled it. The Walkure at the time was lying alongside the French gunboat Zuhlee, which the Germans made their mark, but in sinking the small vessel, the raiders also sank the Walkure. Last year a San Francisco syndicate was formed to refloat the ship and this was successfully accomplished last January. The vessel arrived at San Francisco on March 24, and was refitted and renamed the Republic. It is purely a cargo steamer, but the hull nowadays is worth treble the sum compared with pre-war times under German owners.

Nile on Run Again.—News from San Francisco by the Nippon Maru on May 6, reports the sale of the Pacific Mail steamer Nile, which for many years was on the run between San Francisco and the Orient. The purchaser of the vessel is H. F. Carmichael of Hongkong and while the terms are announced as "private," the figure was approximately $800,000. The Nile was registered as being owned by the Nile Steamship Company. The real owners, however, were the Southern Pacific Company, which chartered it to the Pacific Steamship Company. The Nile made its last trip from San Francisco July 25, 1914, and upon arrival in the Orient was taken over by the British Government for transport duty and only recently released. Built in Glasgow in 1893, the ship is 420 feet long, 52 feet wide and is of 3,156 tons net registry. It is anticipated that the steamer will be put on a schedule between "Frisco" and the Orient.

A. I. C Acquires Two Fleets.—The American International Corporation, organized soon after the outbreak of the European War, with a capital of G.$50,000,000, is reported to have just bought up the rights and interests of the International Mercantile Co. and the Atlantic Transport Co. The Mercantile Marine Co. owns the following steamers:—Finland, 12,760 tons, built in 1902; Poland, 12,760 tons, built in 1902; New York, 10,798 tons, built in 1888; Philadelphia, 10,786 tons, built in 1889; Saint Louis, 11,629 tons, built in 1895; and the Saint Paul, 11,629 tons, built in 1895.

Java-China-Japan Linie.—With regard to the reports of the increase of capital by Fl. 2,000,000 of the Java-China-Japan Linie, it is stated that the issue concerns the second half of the fourth series shares, amounting to Fl. 500,000 and the entire fifth series amounting to Fl. 1,000,000, and subscriptions were invited for Fl. 1,500,000 in shares of Fl. 1,000 each at the rate of 125 per cent. The results of the year 1915 are favourable, so that a dividend of 7 per cent. can be paid. The results of 1916 up till now are satisfactory, whilst those of the Java Pacific Linie, opened in December, 1915, have come up to expectations. The fleet consists of nine steamers of 49,188 gross tonnage, while the steamers Tjisalak and Tjileboet, of 5,800 tons each, are under construction.

China Mail Doubles Fleet.—The China Mail Steamship Company, the only American company now operating a regular steamship service across the Pacific, has acquired the liner Victoria, formerly owned by the Pacific Steam Navigation Company of Liverpool, according to a recent dispatch received in Yokohama. The Victoria is given in Lloyd's Register as a steamer of 5,969 tons gross. The China, which is at present the company's only liner, has more business than it can handle. The China booked a capacity cargo at Hongkong and did not touch at Yokohama on her April voyage to the United States, calling at Nagasaki for passengers only.

U. S. Constructing Many Ships.—According to a statement compiled by the foreign trade department of the San Francisco Chamber of Commerce and read at the Commonwealth Club dinner at the St. Francis by Robert Newton Lynch, vice-president and manager of the Chamber, on April 17, there are now 230 ships of more than 3,000 tonnage in construction in the United States. The cost of these vessels, all of which will have been completed before 1917, will aggregate $16,560,000. Charles H. Bentley speaking on "California's Commerce and Our Merchant Marine," said that the U. S. Government was in the humiliating position of having to violate its own navigation laws by chartering foreign vessels to carry government freight between two of its own ports, something that a shipper is prohibited from doing. This action was not merely a present condition arising from the European war but existed in time of peace, as it will be remembered that the Government had to hire foreign vessels to haul coal to the Pacific coast when the battleship fleet made its memorable trip around the world.

B.A.T. Boats for Pacific.—Four more boats will soon be running in a trans-Pacific service, according to reports published in Shanghai. The British-American Tobacco Company has purchased four large new freighters with which the company will open a freight service. More boats are said to have been acquired, but the four freighters will be put into service first. At what ports they will touch is not yet known. An agent for the line has already been appointed at Shanghai.

Eleven Steamer Pacific Line.—According to the San Francisco Examiner details of the plans of the Oriental Alliance Steamship Company are as follows: Eleven steamers of the $10,000,000 company will soon be operating out of San Francisco to ports in the Far East. Peter D. Milloy, president of the company, which recently organized with a fleet of nearly twenty vessels, stated that the eleven boats to be placed on the Pacific Coast were freighters from 500 to 10,000 tons, manned by American crews under American registry. Included in the company's fleet, which is operating on the Atlantic and in European waters, are the Hocking and Genessee, recently international figures through their seizure by the British Admiralty.

Minnesota May Come Back.—There is a possibility that the liner Minnesota, formerly operated by the Great Northern Steamship Company across the Pacific, may return to Oriental waters in the near future, says the Japan Times. Early in April the vessel was undergoing an extensive reconstruction at the Union Iron Works. Sixteen boilers had been taken out, and new ones were being fitted on a new plan which will make the coal consumption more economical. It was reported in San Francisco early in April that negotiations were proceeding between the owners of the Minnesota and the International Corporation for the charter of the vessel for the Oriental trade. It is known that a branch of the Corporation has been seeking a large steamer for some weeks past to carry certain steel products to Vladivostok and Northern China.

Search for Rio Pasig.—A cablegram from the Bureau of Insular affairs received at the Philippine Executive Bureau says the Federal Government had ordered two revenue cutters out to look for the Rio Pasig, which is believed to have been lost while enroute from Seattle to Vladivostok. The message stated that all steamers leaving the north Pacific coast have been advised to watch for any signs of the steamer, which was manned by a Philippine crew, most of the members of which have relatives in Manila. The vessel is owned by Vicente Madrigal.

Launch at Taikoo Dockyard.—The str. Kajang, built for the Straits Steamship Co., Ltd., of Singapore, by the Taikoo Dockyard, was successfully launched in April. The Kajang measures 286 feet long over all, 41 feet beam, and 21 feet 9 inches moulded depth, and is constructed of Siemens-Martin steel to owners' scantlings. A double bottom is fitted amidships, suitable for water ballast or oil, the forward and after peaks being similarly arranged. Accommodation for a few passengers has been provided in a house amidships and on the bridge deck, the Captain, officers and engineers being accommodated on the bridge and boat decks, and the crew on the upper deck. The cargo handling arrangements are eight steam winches and six steam cranes ensuring rapid handling of cargo. The machinery consists of one set of triple-expansion engines of the builders' own make, having cylinders 18 inches, 29 inches and 48 inches diameter with 33 inches stroke, steam being supplied by two multitubular boilers, also constructed by the Taikoo Dockyard. The sister ship Kamuning will be launched at an early date.

New Yangtse Steamer.—The Lien Hua, launched from the yards of Messrs. Nicolas Tsu, is a sister ship of the Chu Chuan, built by the Sing Fah Yung Co., Ltd. and is for the Ichang-Chungking service of the Szechuen Railway Company. The new vessel, 165ft. over all, and 158ft. between perpendiculars; moulded breadth 26ft.; and moulded depth 8ft, is fitted with two sets of triple-expansion engines, with cylinders of 12in., 20in. and 30in. diameter, by 15in. stroke, developing about 600 horse-power from each engine. Auxiliary pumps worked independently of the main engines, consist of one air pump, one centrifugal for circulating water through the condenser, and general service duplex pumps. The two boilers of the water-tube type, were built at the works. They supply steam at a pressure of 220lb. per square inch, and have been tested to a hydraulic pressure of 440lb. A small watertube boiler, for supplying steam to the auxiliaries in port, has also been made at the works. A motor-driven dynamo operates lights and fans throughout the ship.

New Philippine Line.—The Hak Yek Steamship Company, organized by well known Chinese of Manila, has filed incorporation papers showing capital stock amounting to P600,000 with P330,000 subscribed for and paid up, to start operations in inter-island shipping trade.

Benito Siy Cong Bieng, of the well known Siy Cong Bieng Steamship company, Jose Velasco, owner of a general store, and Attorney Albino Z. Sycip, are among the incorporators. The directors are composed of the above company and Yap Tian Sang, and Chua To Key. Siy Cong Bieng has been designated treasurer. The shares are P1,000. Messrs. Siy Cong Bieng and Velasco hold P105,000 each, while Mr. Yap has P110,000. The other two members of the board hold P5,000 each.

N. Y. K. Adding Nine Liners.—Nine vessels with aggregate gross tonnage of 54,800, comprising three vessels of 7,500 tons class ordered from the Kawasaki Dockyard Co.,

three vessels of 7,300 tons class from the Mitsubishi Shipbuilding Yard, Kobe, and three more of 3,700 and 3,000 tons classes from the Mitsubishi Shipbuilding Yard, Nagasaki, will be added to the Nippon Yusen Kaisha fleet by the end of next October. On the completion of these vessels, the Company's fleet will amount to fifty vessels with aggregate tonnage of 485,600.

The Board of Directors of the N.Y.K. have been approached by influential shareholders to ask for an increase of dividends. The Board, it is said, have their own plan and are about to submit it to the shareholders for approval. In view of present prosperity, it is reported that they will pay three kinds of dividends, ordinary dividends of 10 per cent., special dividends, and special war dividends. All these dividends put together will amount to at least 20 per cent. per annum. However, the Board of Directors state that they must consider the position of the company as a subsidized concern, contract to expire at the end of January next year. If the company pays too large dividends, the feeling will arise that there is no necessity to subsidise the company making such profits. It is certain that there will be a move to cut down the subsidy.

Osaka Shosen Kaisha Prospers.—The business prospects of the Osaka Shosen Kaisha are reported to be excellent with net profits of 6,000,000 yen for the coming six months in sight. Owing to the large profits, some of the shareholders of the company want larger dividends declared at the coming general meeting of the shareholders. Following the example of the other steamship companies, the Osaka Shosen Kaisha will announce a dividend of fifteen per cent.

Japanese Ships on Charter.—According to the latest official statistics 37 Japanese steamers,with an aggregate tonnage of 117,633, were under foreign charter at the end of March. These figures, compared with 42 steamers with a total tonnage of 134,517 at the end of February, show a decrease of five steamers and 16,684 tons. Japanese steamers with an approximate tonnage of 180,000 were under charter by foreign firms at the end of December.

Japan May End Subsidies.—The opinion is gaining among the Cabinet members that state subsidies to the shipping companies engaged in ocean navigation, such as the Nippon Yusen Kaisha, the Osaka Shosen Kaisha and the Toyo Kisen Kaisha, should be discontinued, reports the Tokyo Tsushin.

The reason is that the subsidy is about 8,000,000 yen a year, and a heavy burden to the Government, in its straitened financial circumstances, while the shipping companies, because of the war, are very prosperous. Members of the pro-government parties have commenced investigations into this question.

Huge Profits of Japan's Shipping.—The trips made by an N. Y. K. vessel now easily make profits equal to the vessel. The Toyooka Maru, which left Yokohama for London October 15, arrived at Nagasaki Thursday after making a long voyage, calling at London, New York and Vladivostok via the Cape of Good Hope. It was reported that the freight profits of the vessel amounted to 900,000 yen and the receipts of two trips made by the vessel will repay the cost of building.

Prior to the outbreak of the war the total tonnage of Japanese vessels trading to foreign countries did not exceed 500,000, according to the Asahi, and the amount of specie earned abroad by these ships was in the neighbourhood of Y.35,000,000. Since the outbreak of hostilities, however, the tonnage of Japanese ships trading abroad has greatly increased, and at present is estimated at something like 1,000,000 tons, including the vessels chartered by foreigners, and the amount of money earned by them is now more than four times as much as before the war. It is not possible to arrive at an accurate estimate of the amount of money earned by Japanese vessels trading in foreign countries in the shape of freight and charterage, but the following monthly average may be regarded as approximately correct:—Regular lines (300,000 tons) Y.1,500,000; Extra ships and tramp steamers (550,000 tons), 6,600,000; and Ships chartered by foreigners (150,000 tons), 3,370,000, a total of Y.11,470,000. This amount of specie it is estimated is attracted to Japan every month by the working of Japanese ships, and as there are no fears of a decline in freights and charterage so long as the war lasts, the import of specie from this source during the present year will not be less than Y.100,000,000, and possibly considerably more.

Mr. S. Asano, president of the T.K.K., said a few weeks ago, that the prospects for the shipping business for the coming year are bright, and that the amount of foreign money earned by shipping interests of Japan will exceed 120,000,000 yen before the end of this year. More optimistic experts believe that it will exceed 150,000,000 yen. For years Japan's aspiration in the matter of foreign trade was that the balance of trade might turn in her favor. This was realized last year, the balance in her favor being 170,000,000 yen. The amount of foreign money to be realized by the shipping business is somewhat inferior to the trade balance of last year, but it will be a huge factor in the prosperity of the country.

Koreans Plan New Bridge.—The semi-official Seoul Press reports that the Government General is planning to construct an iron bridge across the Han river on the highway between Seoul and Chemulpo, a little above the railway bridge at Ryuzan. The cost is estimated at $350,000. It will be 2,000 feet in length and 27 feet in width and it is expected that work will be commenced in the summer of 1916 to complete the bridge in 1917. Correspondence should be addressed to the Director of the Bureau of Public Works, Government General of Chosen, Seoul, Chosen.

FINANCE

Salt Tax Decrease.—The loss sustained by the Chinese Salt Administration in consequence of the independence of some of the Southern provinces is estimated by the Chinese Press at one and a half million dollars. Of this sum, Yunnan and Kueichow together are responsible for a decrease of $450,000; Kuangtung for $750,000 and Chekiang, $350,000.

Japanese Specie Now 540 Millions.—The amount of Japanese specie recently has increased is now 540,000,000 yen, of which 180,000,000 yen is at home, 90,600,000 yen in the United States and the remaining 270,000,000 yen in Europe. The growth of trade and the sale of war munitions are causes of this remarkable increase. Compared with the figures at the end of March, the amount of specie in Europe decreased by 17,000,000 yen, while that in the United States increased by about 50,000,000 yen. This extraordinary increase in the United States was due to the recent heavy purchases by the Yokohama Specie Bank of exchanges outstanding between the United States and Japan.

T. T. K. Redeems Debentures.—The Toyo Kisen Kaisha has decided to repay the third issue of the company's debentures at 1,000,000 yen in cash from May 20, according to the result of the drawing carried out a few days before. This is the fourth refundment the company has undertaken this year, and when the present redemption is carried out the outstanding debt will be reduced to 2,800,000 yen, This latter sum will also be repaid during the present year when the insurance claims on the Chiyo Maru are met by the insurance offices.

Standing of Banks in Japan.—According to an investigation by the Tokyo Clearing House, the records of the associated banks in Tokyo, and other banks represented by them, onMay 20, show paid-up capital of 157,000,000 yen, an increase of 25,000,000 yen compared with last year. The reserves of these banks aggregate 64,000,000 yen, an increase of 9,400,000 yen; the deposits 725,000,000 yen, an increase of 196,000,000 yen. Loans reached 217,000,000 yen, an increase of 56,000,000 yen; the holdings of securities increased from 161,000,000 yen to 217,000,000 yen. The increase in securities was, however, partly due to their advance in price. The ready cash reached 64,000,000 yen, an increase of 10,000,000 yen.

The reports of the eleven clearing houses of Tokyo, Osaka. Kobe, Kyoto, Yokohama, Nagoya, Hiroshima, Kwarmon (Moji), Kanazawa, Hakodate and Otaru also show general increases. The figures of the associated banks to these clearing houses are as follows:

	April 1916	Increase over April 1915
	Yen	Yen
Paid-up capital...	259,000,000	31,000,000
Reserves	113,000,000	11,800,000
Deposits	1,492,000,000	401,000,000
Loans................	1,577,000,000	497,000,000
Holding of securities	351,000,000	98,000,000
Ready cash	118,000,000	20,000,000

Philippine Bank Earnings.—The Philippine National Bank, created by an act of the legislature during the last session of that body, and officially declared open for business on May 2, by the middle of May showed net earnings from operations in all branches, including the agricultural bank operations, of which the new institutien has taken charge, of nearly P40,000. At the last regular weekly meeting of the board of directors of the bank the books of the institution were formally opened and President Willis submitted to the directors a statement of operations, liabilities and assets to date, this showing the net earnings up to the present time to be just a little less than P40,000. A statement of stock subscriptions thus far received, including the payments made by the insular government on a portion of its holding under the provisions of the bank's organic act also was made.

Philippine Revenue Collections.—The statement of collections during April as issued by the Bureau of Customs of the Philippine islands, shows a falling off of P231,756.23 as compared with the corresponding period of 1915. With the exception of the port of Cobu, all ports of entry registered a decrease in collections, Manila being in the lead with a total falling off of P178,700.12. In the port of Manila, customs collections last month amounted to P559,418.42, while for the corresponding month last year, these totaled P738,118.54. During April of last year, collections in the port of Iloilo were P151,268.78, while last month only P106,162.13 was collected, showing a decrease in the amount of P45,106.65. To offset this reduction the port of Cebu showed P8,867.36 increase, the collections for April 1916, in this port amounted to P91,456.66. Zamboanga's collectians last month amounted ta P7,059.30 as compared with P15,301.80 last year, while in Jolo only P14,655.43 were collected this year as compared with P23,229.75 of April, 1915.

Although Customs revenue decreased the Internal recoenve for the first quarter of 1916 has increased P1,244,033.94 over the corresponding period of 1915.

Considerable increases are noted, in distilled domestic spirits, which excelled by P278,954.-84, on domestic cigarettes P257,377.54; kerosene and petroleum, P187,909.16; cinematograph ffims, P38,967.65; and playing cards, P35,116.43. On the latter two items no tax was collected during the previous year. The taxes paid by merchants, manufacturers, and common carriers, exceed by P671,900.53 the collections for the corresponding period last year.

Japan's Domestic Loan.—Subscriptions for Japan's new domestic loan of 40,090,000 yen which was closed April 25 are reported to have reached 43,224,650 yen inclusive of the amounts takken by the syndicate banks. Of this amount, 1,035,650 yen was subscribed at premiums ranging between 10 sen and 1,00 yen per 100 yen. Osaka contributed about 10,000,000 yen, but the amount taken in Kyoto and Nagoya was small. The largest part of the loan was taken in Tokyo and the vicinity. According to an Osaka dispatch, the subscription received by the Osaka branch of the Bank of Japan up to April 24 was about 10,000,000 yen.

Russian Bonds in Japan.—According to Japanese press reports an agreement was reached on May 9, between the authorities of Japan and Russia to the effect that Russian Exchequer Bonds be issued to pay a portion of the cost of munitions that Russia bought from Japan. The issue will be 30,000,000 yen to 50,000,000 yen, at 6 per cent per annum, to be redeemed in six months or one year. The rate of commission has been fixed at one per cent., although the bankers at first requested 1.5 per cent. The Japanese bankers express the hope that the bonds will never be renewed, and that in case the Russian government finds it difficult to redeem the bonds, the entire issue will be purchased in England, or the British government will assure the Japanese capitalists of the payment of the issue.

On the same subject, the Asahi reports a recent tendency for the Russian war orders to be placed through British firms. It seems that the Russians are anxious to obtain the financial help of British firms in buying war goods from Japan in view of the inability of the Japanese to extend long credit. The Japanese merchants or manufacturers are desirous of the direct trade because of the larger margin of profit, but then they must wait long for the payment. The intervening of the British firms in the business would certainly deprive the Japanese of a greater part of the profit. The general opinion of the Japanese merchants is, that the business should be done as much as possible through British firms.

Philippine Surplus Increases.—The liquid surplus of the Philippine government that will be carried over at the close of the present fiscal year as appropriated or available for appropriation, will be P301,125.15 greater than was the case on December 31, 1915, according to Insular Auditor C. H. French in a recent estimate of income and expenditures. The Auditor's budget estimate shows that whereas P24,350,667,67 is available for current expenses of bureaus and offices during 1916, the estimated expenditures under this head during the same period amount to only P17, 760,311.11 net, this amount representing gross expense less income accruing through operations not generally classed as commercial and industrial activities. Nearly a million will also be saved from public works appropriations. In fixed charges nearly another million is saved in interest and exchange on Philippine Railway company bonds, and interest on Manila Railroad company bonds. Both companies are expected to meet the greater part of this expense without aid from the insular treasury.

The auditor's estimate shows that the liquid surplus carried forward to 1916 amounted to P9,145,191.84, of which P5,232,816.05 was unappropriated and P3,912,376 79, appropriated. To this amount he adds the estimated income of the insular government for the present fiseal year, as follows: customs revenue, P12,500.000; internal revenue, P14,-700.000, United States internal revenue, P450,000; franchise taxes, P500,000; income taxes, P450,000; miscellaneous revenue, P75,000.

A further addition is the income from commerical and industrial activities of various departments of the government, classified as follows; bureau of supply, division of cold storage, P125,000; bureau of prisons industrial division, P25,000; bureau of printing P60,000; marine railway and repair shops, P100,000; friar lands loan fund, P5,000; sales agency fund, P35,000; Los Banos quarry, P1,000; American colonies, P10,000; Mindanao and Sulu Filipino colonies, P53,000; Filipino colonies Cagayan, P10,000, Benguet road toll collections, P25,000; friar lands estates, a new account, P1,900,000, of which P900,000 is estimated as profit; gold standard fund earnings, P850,000; and agricultural bank, now transferred to Philippine National Bank, P100,000.

RIVERS AND HARBOURS

Dairen Harbour Works.—The South Manchuria Railway Co.'s Harbour Works Office, Dairen, recently resumed its harbour improvement work. The chief items of this year's programme are the construction of Wharf No. 3, the Northwestern Breakwater, the reclamation work at Jijiko, etc. The estimates amount to Y1,703,872. The last-mentioned reclamation work is expected to be finished during the current fiscal year; Wharf No. 3 will be completed during the fiscal year of 1910. The S. M. R. Co. has plans to construct Wharf No. 4 on lines already drawn up. The Wharf in project is to be constructed at the west of Wharf No. 3 in the recess of the Bay where junks are now anchoring at the east of the Kawasaki Dock. The shorefront will be reclaimed for warehouses. The Wharf will be 400 ft. wide and 2,000 ft. long. The construction work will follow upon the completion of Wharf No. 3.

Transfer Tsingtau Dock to Japan.—The floating dock of 16,000 tons at Tsingtau, captured as a prize of war, is to be transferred to the naval port of Sasebo under plans announced by the Japanese Navy Department.

Port Swettenham's Harbour.—In commenting on the harbour facilities which Port Swettenham, British North Borneo, now possesses, the Australian Shipping Index says that they include a steel compound screw pile wharf, 1,200ft. long and 50ft. wide, giving about 30 ft. of water for vessels lying alongside at low tide. Connection is made to the shore by five gangways at right angles to the wharf, at a distance of about 200 ft. apart. The wharf and gangways are laid with a double track, the respective track being connected at the head of each gangway by turn-table. The whole of the transport equipment, including turn-table, cranes, capstans, etc., will be electrically driven, the power being obtained from a power station shortly to be constructed at an estimated cost of $120,000 (U. S. currency). Six godowns have been built on the shore opposite the wharf with 63,840 sq. ft. floor space. These are of steel frame and corrugated iron sheet, constructed on reinforced concrete pile foundations, the length of piles being 40 ft.

Singapore Harbour Report.—The report of the Singapore Harbour board for the six months ended December 31 has been issued. The credit balance of income and expenditure for the half-year is $1,053,529, nearly all paid in interest due or owing to Government on loan funds. $345,012 is carried forward to next account. The net revenue shows an increase of $95,905 over the previous half-year, and an increase of $210,146 over that of the average of the preceding twenty half-years. The wharf account shows that 1,182 vessels used the wharves, exactly the same number as the previous half-year, but about 160 less than in half-years immediately prior to the commencement of war. The tonnage was 2,122,719. Cargo dealt with was 1,160,559 tons against 1,184,530, better than the corresponding half-year of 1914 by 80,000 tons. Some 160 vessels were docked for repairs, with a tonnage of 253,424, the largest being the *Laurentic*, 14,892 tons and 550ft. long. The King's Dock has dealt with 960,804 tons. Cargo and coal handled by the lighterage department was 90,886 tons against 85,707. It sustained a loss in working of $7,762 but $11,154 was expended in repairs to lighters and launches.

On the reconstruction of wharves, the report says that the Contractors, Messrs. Topham, Jones and Railton, Ltd., have made good progress during the half-year. The average number of men employed during the half-year by the Contractors, Messrs. Topham Jones and Railton, Ltd., was fifty-two Europeans and 1,615 Asiatics. A considerable length of the main wharf will shortly be completed but the godown accommodation is seriously delayed owing to most of the godowns in construction in Great Britain having been commandeered. The Board is constructing godowns out of what material is suitable from the old godowns now being pulled down. A length of 2,600ft. of wharf is out of use being in the hands of the Contractors.

In comparison with half-year ending June 30, 1915, the gross earnings of the wharf department show a decrease of $16,288.00, the net earnings a decrease of $13,095.00 and the tonnage a decrease of 23,971 tons. The docks and workshops department shows an increased profit of $178,017.21, this owing to the greater volume of work undertaken.

The expenditure on repairs and renewals was $198,404.76; an increase of $56,907.56 on the preceding half-year.

Of the total interest paid or due to Government, viz., $978,447.38 for the half-year under review, $595,679.08 was in respect of interest account the capital cost of the undertaking, and debentures and loans at call, redeemed; the balance of $382,768.30 being in respect of interest on progress cost of new works. The total of $978,447.38 being an increase of $21,488.65 over that of the previous half-year.

Discusses Dredgers.—Mr. F. J. Blom, C.E., read a very interesting paper to members of the Engineering Society of China on May 6, on the subject of Dredgers and Dredging. Mr. Blom, who was technical manager of the Netherlands Harbour Works Co. in Shanghai for three years, may be considered to be an expert on this subject. During his recent visit to Holland and the dredger building yards, for which Holland is famous, Mr. Blom studied the improvements in this line. After analysing the sort of work to be executed by dredgers the different forms of dredgers necessary for each sort of soil were described. The speaker dealt also with grab dredgers, dipper-dredgers, bucket-dredgers, suction-dredgers, and shoving suction-dredgers. Of the last named, the newest designs for the La Plata River in the Argentine were described, as pushing the mud into the holds through a short and wide mouth-piece when slowly steaming ahead, thus giving an hourly output never reached before by suction-dredgers. This type was specially mentioned in connection with bar dredging for places like Shanghai, Tientsin and Newchwang, as it will prob-

ably be necessary to use this type of dredger at these places in the near future when trade asks for larger accommodation and harbour facilities than are available at present.

For the improvement of the canals and small rivers in China, several small size bucket, suction, and clay-cutter-dredgers were mentioned. After many years of practice and careful consideration, only very few building works succeeded in turning out useful types, but these are most interesting in construction. Dealing with the needs of China, Mr. Blom gave it as his opinion that Chinese yards, now trying to construct dredgers, are on the wrong track in not making use of the vast experience gathered by foreign countries.

MINING

Japanese Survey Hunan Mines.—According to a report from Chenchow, Hunan, mining is still booming in many places. The antimony mines are being worked for all they are worth. In a recent country trip many specimens of ore were seen. Japanese engineers are making extended surveys of the mines in this section.

Mineral Wealth of Inner Mongolia.—According to the results of investigation by a European prospector, published in the Japanese Press, Inner Mongolia contains 353 mines, comprising 89 gold, 23 siver, 63 copper and iron, and 127 coal mines, in addition to 51 more containing both gold and silver seams.

Many Want Chinlingchen Iron Mine.—The intrinsic value of the iron ore of Chinlingchsn Mine on the Shantung Railway, that is, the percentage of iron contained therein, has been a theme of varying calculation. Redently 200 tons of Chinlingchen ore were sent to the Steel Works at Muroran where a comparative smelting test with Tayeh (China) and Abuta (Japan) ores was made. The test showed that, whilst Chinlingchen ore is 3 or 4 per cent. less than Tayeh ore in the quantity of iron, it contains calcareous substance which makes it self fluxing and facilitates the smelting process, also effecting a saving in the consumption coke. The Germans, before the outbreak of the Siege War about Kiaochou planned to found a steel works at Tsangkou capable of putting out 100,000 tons per annum.

When the results of the practical test were made known, the Mitsuis are said to have applied for the privilege of exclusive operation. The Okuras, too, are reported to have proposed to elect themselves the sole buyer of the output. The Kuhara Mining Co., Osaka, also is prepared to establish a steel works at Chinlingchen or Tsangkou. The Suzukis of Koke, are said to have nurtured a similar plan. The Japanese War Office is said to be rather inclined to place the mine under private tapping, but this new mining and smelting enterprise is sure to be contested strenuously by a number of leading capitalists of Japan.

A later report states that the War Office plan of operation of the mine calls for an outlay of Y300,000 out of the extraordinary military list. This has the sanction of the Finance Office, Tokyo, and has bean passed at a Cabinet council, at which an early commencement of the operation was urged as a matter of importance.

Export of Mica from Shantung.—Good seams of mica, which forms an article of importance amongst electricity materials, occurs about Weihsien on the Shantung Railway. Under the German regime it was exported, but since the Siege of Tsingtau the export business has been practically suspended. Of late some Japanese have gathered a small supply of this article and shipped it. Experts say it is likely to become an export of some consequence.

Osaka Copper Co.'s Share Issue.—The Osaka Electroytic Copper Company has issued a prospectus announcing the issue of new shares representing 1,000,000 yen of which 40,000 shares are to be assigned to the company's employees. whilst remaining 9,500 shares are to be offered for public subscription.

The conditions of the issue are very favourable considering the present standing of the company, which ensures the distribution of minimum dividends of 15 per cent. per annum even after allowing for the increase in capital.

New Coal Seam in Japan.—A vast coal seam has lately been struck about Kurume in a coal field that comprises some 300,000,000 *tsubo*. Many applications for operating the find have been field with the Communications Department, Tokyo. An expert remarks that the new find promises to be a richer coal asset than the four counties of Chikuzen Province put together. The quality of the coal has not been stated as yet.

Alluvial Gold Deposits at Laotiehshan.—Mr. R. Horiuchi, Director of the Lungkou Bank, reports the existence of alluvial gold desposits in good quantity at the foot of Laotiehshan, Port Arthur. Miners have been engaged in gathering them for months past on a small scale.

Ressia Wants Japanese Copper.—Russia is making repeated inquiries in Japan for electrolytic copper. It is reported that the Kuhara Mining Company and the Mitsui Mining Company have received inquiries for a supply of 30,000 tons each of electrolytic copper, and the Mitsubishi Company has also received an order for 40,000 tons. But none of these has yet resulted in a eontract because nothing definite has been stated as to the method of payment. In view of the desirability of opening such a big trade in this metal with Russia, the Mitsubishi Company is about to send a representative to Petrograd on a three months' trip in order to arrive at definite and permanent business arrangement with the prospective buyers.

New Japanese Smelter.—Okura and Company have selected a sea-coast town in Saekgun, Hiroshima prefecture, as the site for an iron smelting works. The company has long been contemplating the establishment of an iron smelting works at home to make pig iron of ores produced at the Penchihu Mine. Long before the site for the proposed works was selected, furnaces and factory equipment were ordered from Sweden, for the company is to adopt the Swedish method of smelting. By the earlp Autumn nearly all the equipment will arrive. The beginning of next year may therefore see the new smelting furnaces in full blast turning out nearly 20,000 tons of charcoal smelted pig iron annually. If this plan be carried out in its entirety all the requirements of the Japanese Army in this country can be met out of the production of the new works and check the import of Swedish iron.

Japanese Refining Zinc.—A noteworthy feature in Japan's mining industry is the recent growth of zinc refining. Prior to the war there was practically no refining of zinc. All zinc ore produced in Japan was sent to Germany, but the rise in the price of zinc has made it pay to refine it in Japan. Along with the growth of refining the demand for zinc ores has increased.

The largest zinc mine is that in Miyagi Prefecture, owned by Messrs. Takata & Co. Last year the monthly output ranged between 300 tons and 500 tons, and the total was 4,000 tons for the year. It is estimated that 2,400 tons will be mined in the first six months and 6,000 tons in the second half of this year. By January next year, the monthly output is expected to be 1,500 tons or 18,000 tons a year.

The Hiroo mine in Hokkaido owned by the same firm is expected to produce 300 tons a month, but the plants are being increased for an annual output of 5,000 tons.

The Yawata mine in Gumma Prefecture also owned by the same firm, has an ouput of 200 tons a month.

Messrs. Kuhara Mining Co. recently bought a zinc mine which produces 300 tons a month. This company, a prominent copper mining concern, has for some time been refining zinc. The Kamioka mine in Hida Province, owned by the Mitsui Mining Company, is the largest zinc mine in Japan. Its output even prior to the war was 20,000 tons year or over half of all the Japanese output. As improvements have been made it is estimated that the present production soon will be increased by about 30 per cent.

The Yasuda mine in Nagasaki prefecture, which was producing 3,000 tons a year prior to the war, is now producing 6,000 tons. Thus the output prior to the war was scarcely 40,000 tons a year, but is increasing so that next year it may be over 60,000 tons.

Seoul Mining Co.—The following results were obtained from the operations of the Seoul Mining Co. in April, 1916:—

Tons Crushed	16,432 tons
Value Bullion Recovered ...	Y 130,915.00
Value Concentrates Recovered ...	174,844.00
Total Receipts (approx.) ...	Y 305,759.00
Operating Expense (approx.) ...	115,000.00
Operating Earnings (approx.) ...	Y 190,759.00

Chosen Copper Mine Sold.—It is reported from Seoul that a contract has just been signed between the representatives of Mr. Fusanosuke Kuhara, the President of the Kuhara Mining Company, and of Mr. Colbran of the Colbran-Bostwick Development Company for the sale of a copper mine at Kapsan, which has been worked by the latter. The mine is situated on the Northern border of Hamkyongtao, and is regarded as one of the richest copper deposits in the whole peninsula. According to estimates the ores contained run well over 100,000 tons. Mr. Colbran obtained the right to work this mine in 1909 when the peninsula was still under the rule of the old royal family. Since the annexation of the peninsula, rumours repeatedly circulated in Seoul that Mr. Colbran intended disposing of his rights, but each time it has been denied. Mr. Kuhara, however, has succeeded through the mediation of some influential persons in the Chosen capital, in persuading Mr. Davidson, the agent in Seoul for Mr. Colbran, to part with the mine. The property is said to have been appraised at 3,000,000 yen, half of which is to be paid at once and the remainder in instalments.

Gold Purchases in China.—Gold purchased by the Bank of Chosen mostly comes from from north-west Chosen and the transaction is chiefly carried on at its branch in Pyongyang, metal collected in places south of Whanghai and Kangwon Provinces coming to the main office of the Bank in Seoul. The total amount of bullion purchased in Seoul during February was 52 Kwan, about 19,000 yen in value, and during March 60 Kwan, about 25,000 yen in value. Owing to the mild weather prevailing and the increase of gold mines being worked, a steady increase in this business is observable.

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